ISSUE MANAGER REPUTATION, UNDERPRICING AND LONG-RUN PERFORMANCE OF INITIAL PUBLIC OFFERINGS:

EVIDENCE FROM THE SINGAPORE IPO MARKET

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ABSTRACT

The study explores the role of issue managers in the initial public offering (IPO) process. Empirical research shows that IPOs are associated with two significant market anomalies: short-run underpricing puzzle and long-run underperformance phenomenon. This paper examines the reputational influence of issue managers on the two anomalies. Employing the newly developed 'twelve-month rolling' reputation ranking approach, our study is the first to furnish a comprehensive ranking of all the issue managers with a substantial presence in Singapore.

Based on a sample of 384 IPOs listed on the Singapore Exchange between January 1, 1997 and August 22, 2008, we find evidence of prevalent short-run underpricing and long-run underperformance in the domestic market. Our findings indicate that the IPOs backed by higher reputation issue managers are associated with greater short-run underpricing. This is consistent with the 'market power hypothesis' which postulates that higher reputation issue managers are able to generate greater market participation and higher market valuations in the immediate post-issue market. However, the reputational influence of issue managers diminishes with time. Beyond the twelve-month return window, the issue manager reputation no longer has predictive power for the returns performance. Overall, the results suggest that the consideration of issue manager reputation profile is important if proper inferences on the IPO returns performance are to be drawn.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The initial public offering (IPO) is one of the fundamental tools in the world of corporate finance. Over the past decades, the market value of new stock issues burgeoned rapidly[1] (Saunders and Cornett, 2001). Indeed, the rising popularity of IPOs among corporations has prompted immense attention from researchers in academia. Despite voluminous studies in this field to date, much remains to be explored. In this study, we will focus on the reputational influence of issue managers in the IPO process. Specifically, we seek to find out the role that issue manager reputation has on two prevalent market anomalies namely the short-run underpricing puzzle and the long-run underperformance phenomenon.

Jones (1998) defines an anomaly as a 'regular and predictable return pattern that is widely known, yet continues to exist'. The short-run underpricing anomaly is a 'persistent feature of the IPO market' (Ritter and Welch, 2002) and definitely the 'best-known pattern associated with the process of going public' (Ritter, 1998). As the term suggests, the underpricing phenomenon refers to the tendency that the offer price of new issues are generally set lower than the market-clearing price. This downward bias in the offer price results in the stock price of IPOs to appreciate sharply on the first day of

[1] According to statistical data published by the Federal Reserve, the annual issuance of new common stock in the U.S. almost tripled in volume over a short span of 15 years, from 57 billion dollars in 1992 to record heights of close to 148 billions of dollars in 2006. Please refer to various issues of the Federal Reserve Bulletin, Table 1.46. The website link is as follows: www.federalreseve.gov/Pubs/supplement/

trading. Consequently, an investor who is allocated a share in the IPO is likely to earn positive abnormal return in the immediate secondary market. Various interpretations of this phenomenon will be put forth in Chapter 2.

Another anomaly that has attracted considerable attention is the long-run underperformance of IPOs. Extant literature documents that the IPO firms are able to successfully time the listings during market peaks so as to take advantage of the windows of opportunity to push for higher valuations. The attractive but unsustainable returns performance in the first few days of trading causes the IPO firms to underperform the market and industry peers over the longer-horizon.

1.2 OBJECTIVES OF THE STUDY

An IPO refers to the first issue of securities by a company to the general public (Saunders and Cornett, 2001; Ross, et al., 2002). Since IPOs involve the sale of equities in closely-held firms, there is limited information available about the firms when they make their first appearances on the stock exchange (Jenkinson and Ljungqvist, 2001). The presence of widespread information asymmetries poses major challenges to the valuing of the IPOs. In a bid to reduce the amount of uncertainties and informational asymmetries between the firm insiders and outside investors, IPO firms engage financial intermediaries to certify and reassure investors that the offer prices are truly consistent with inside information (Booth and Smith, 1986; Ross, et al., 2002).

The reputational role of underwriters in the IPO process has come under the limelight in recent years. As an extension to existing literature, this study examines the impact of issue manager reputation on the underpricing and underperformance phenomena in the local market. Hitherto, empirical research on the role of issue managers based in Singapore is scant. Using a sample of 384 IPO firms that were listed on the Singapore Exchange (SGX) between January 1, 1997 and August 22, 2008, the paper seeks to achieve three objectives.

First, the study attempts to shed new light to the literature by ranking the issue managers in accordance to their reputation profile via the newly developed 'twelve-month rolling' reputation ranking approach. Next, the study aims to gain insights on the underpricing and underperformance phenomena in the domestic market through examining the pre-issue valuations and post-issue aftermarket stock performances of the IPO firms listed on SGX. Finally, by employing the conventional univariate sub-sample comparisons and multivariate regression analyses, the paper explores the association between the issue manager reputation profile and the abovementioned anomalies. Concluding the study, we endeavor to explain the reasons behind the findings and the implications involved.

1.3 MOTIVATIONS OF THE STUDY

The reputational role of underwriters in the IPO process has been a subject of much heated debate. While conventional wisdom suggests that the IPOs underwritten by high reputation investment banks are likely to display less underpricing and better long-

run stock performances (see, among others, Carter and Manaster, 1990; Chemmanur and Fulghieri, 1994; Carter, et al., 1998), empirical evidence however indicates that the relation between underwriter reputation and IPO returns has undergone significant structural shifts in the second half of 1990s. Using recent data, Beatty and Welch (1996) and Loughran and Ritter (2004) posit that IPOs underwritten by high reputation underwriters are instead characterized by greater mispricing. This contradicts the widely known 'certification hypothesis' documented in the literature. Given the deviation in empirical findings, the reputational impact of underwriters presents an interesting area for in-depth research.

To date, the bulk of the empirical studies examining the reputational role of underwriters have largely focused research efforts on the United States (U.S.). Significant differences in the economic conditions between Singapore and the U.S., coupled with the unique institutional framework of the local market, suggest that conclusions derived from the U.S-based empirical research might not exactly extend to the domestic context. With Singapore's growing importance as a global financial hub, examining the reputational role of issue managers based in Singapore is an important first step to gaining a better understanding of the financial operations within the domestic IPO market.

More significantly, the domestic financial sector has witnessed a series of large scale restructuring reforms in recent years. The liberalization of the banking and financial sector in the late 1990s prompted a wave of consolidation among the financial institutions, introducing steeper competition to the local investment banking industry. In light of these

reforms, we are motivated to examine whether the underpricing puzzle and long-run underperformance anomaly found in prior Singapore-based IPO studies continue to prevail in recent times.

1.4 POTENTIAL CONTRIBUTIONS OF THE STUDY

As discussed, there is a substantial body of U.S-based research examining the effects of underwriter reputation on the valuation and aftermarket stock returns performance of IPO firms. However, we are not aware of any study that investigates the reputational impact of issuer managers in Singapore. Using a newly developed 'twelve-month rolling' reputation ranking approach, our study is the first to furnish a comprehensive ranking of all the issue managers with a substantial presence in the local IPO scene. Unlike previous Singapore-based IPO works that commonly use a simplified dummy variable specification for the underwriter reputation measure[2], we propose a more intuitive approach that allows us to uncover the qualitative differences among issue managers of different reputation standings.

In this paper, we examine the impact of issue manager reputation profile on the short-run underpricing and long-run underperformance phenomena in the Singapore IPO market. Consistent with previous studies, we find evidence of prevalent short-run underpricing and long-run underperformance in the domestic market. Specifically, our results suggest that higher reputation issue managers are able to generate greater market

[2] Reber and Fong (2006) uses a dummy variable specification for the underwriter reputation measure that is coded one to reflect the most reputable underwriter, Development Bank of Singapore Ltd (DBS) and zero otherwise. According to the researchers, DBS is used as the benchmark as it dominates the underwriting business. Individually, its market share accounts for more than forty percent of the entire domestic IPO market.

participation and optimism among investors about the future prospects of the IPO firms. Correspondingly, IPOs engaging higher reputation issue managers have been observed to record larger initial returns and greater short-run underpricing. This is in line with the market power hypothesis put forth by Chemmanur and Krishnan (2007). Over time, the reputational impact of the issue managers however diminishes and no longer has predictive power for the returns performance beyond the twelve months cumulation period.

Therefore, our study contributes to the existing literature in several ways. First, as an extension to previous Singapore-based IPO research, our results reaffirm the persistence of the short-run underpricing and long-run underperformance anomalies even in recent times. Notably, against the backdrop of periodic economic downswings, we are able to demonstrate that the two anomalies are generally robust to fluctuating economic conditions. Second, the study provides insights on the pricing policies of issue managers and their influence over the stock price performances of IPO firms. Specifically, through the data collected from the Singapore IPO market, we are able to scrutinize the influence of issue managers in a market that differs substantially from the U.S. both in terms of market size and level of sophistication. Given our findings of plausible signaling effects of the issue manager reputation in the local market, we would be able to draw useful inferences on the role of underwriters and issue managers based in other Asian economies with similar macroeconomic environment and institutional framework as that of Singapore. Finally, the study aims to provide readers with a holistic picture of the issue manager reputational impact on the performance of IPO firms. Understanding that

investors would be interested to know the short-run as well as long-run performances of IPOs, we track the daily stock price movements of each IPO firm up till its second anniversary. Overall, in terms of the sample size and the sampling period, this study can be considered as one with the largest coverage undertaken using Singapore data thus far[3].

1.5 ORGANIZATION OF THE STUDY

The remainder of the thesis is organized as follows. Chapter 2 reviews the past literature on the short-run underpricing puzzle and long-run underperformance phenomenon. This is accompanied by a brief account of the various studies on the reputational role of underwriters in IPO process. Chapter 3 describes the research design. It looks into the sample selection criteria and variable definition, and discusses the development of the hypotheses. Chapter 4 outlines the methodology. Chapter 5 highlights the empirical results. Chapter 6 concludes with the limitations of the study and provides suggestions for future research.

[3] The following is a list of some of the previous papers that have been done on the Singapore IPO market and a brief overview of the sample used:
i) Reber and Fong (2006) use a sample of 100 IPOs listed between 1998 and 2000.
ii) Tan, et al. (1999) use a sample of 82 IPOs listed between 1987 and 1993.
iii) Firth and Liau-Tan (1997) use a sample of 114 IPOs listed between 1980 and 1993.
iv) Koh and Walter (1989) use a sample of 70 IPOs listed between 1973 and 1987.
v) Dawson (1987) uses a sample of 39 IPOs listed between 1978 and 1983.
vi) Wong and Chiang (1986) use a sample of 48 IPOs listed between 1975 and 1984.
vii) Koh and Tee (1985) use a sample of 62 IPOs listed between 1973 and 1984.
viii) Dawson (1984) uses a sample of 29 IPOs listed between 1979 and 1983.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

There has been extensive theoretical and empirical research on the initial public offering (IPO). In this chapter, we will review two well-documented anomalies in the IPO literature, namely the short-run underpricing puzzle and long-run underperformance phenomenon. As a prelude, the chapter begins with a brief account of the rise in popularity of IPOs among corporations in Section 2.2. Thereafter, we outline the literature developments of the two anomalies. Major milestones are highlighted and the explanations for each anomaly are discussed in Sections 2.3 and 2.4 respectively. This is followed by an overview of prior works on investment banks and their role in the IPO process. Finally, the chapter concludes with a summary of the more prominent works done on the Singapore IPO market thus far.

2.2 RISE OF THE IPOs

The bull market era of the 1960s witnessed the rising popularity of IPOs as an attractive investment instrument. During the 'hot issue market' of 1968 and 1969, Wall Street played host to a total of 2,171 IPOs within a short span of twenty-four months (Neuberger and Hammond, 1974). Over the years, the number of IPOs grew tremendously. In 1999 and 2000, the issuing volume in the United States reached sixty-five billion dollars a year. The percentage of technology firms going public also soared, from about twenty-six percent in the 1980s to over seventy percent of the IPO market

during the Internet bubble period (Ritter and Welch, 2002). Undoubtedly, the buoyant IPO markets sparked heightened interest among researchers to unveil the mysteries of this rising phenomenon. Specifically, why do firms go public?

Causal discussions on the motivations for IPO usually center on the need to raise equity capital and enhance the market liquidity for the stock (Ritter, 1998; Holmstrom and Tirole, 1993). Zingales (1995) is among the earliest researchers to formalize a theory to explain the going public decision. Based on a corporate control argument, the researcher postulates that the desire to maximize wealth through the sale of 'control rights' drives the incumbent to go public.

Following the pioneering work by Zingales, numerous studies attempt to explain the going-public decision by examining the characteristics of the IPO firms. For instance, Lerner (1994), Pagano, et al. (1998) and Chemmanur and Fulghieri (1999) find that firms with larger capital requirements, higher market-to-book ratios and in industries with greater technology uncertainties are more likely to embark on IPOs. Summarizing the myriad of theoretical reasons proposed by various studies, Ritter and Welch (2002) posit that the decision to go public is pivotal on two most important concerns, that is, the life cycle stage of the company (Subrahmanyam and Titman, 1999; Maksimovic and Pichler, 2001) and market conditions (Lucas and McDonald, 1990; Choe, et al., 1993). Indeed, the decision to go public involves multiple criteria, with the crux of the decision hinging on unique firm considerations, industry-specific factors as well as unpredictable macroeconomic environment (Ritter and Welch, 2002).

2.3 SHORT-RUN UNDERPRICING PUZZLE

The IPO literature is populated with countless illustrations of new issues being underpriced (McCarthy, 1999; Ross, et al., 2002). One highly publicized example of underpricing is the case study of Netscape (listed on 9 August 1995). With an offer price of 28 dollars, Netscape's stock price surged by 108 percent to close at 58.25 dollars on the first trading day (Ritter, 1998; Loughran and Ritter, 2002). Netscape is one example among the thousands of IPOs that bears testimony to the underpricing phenomenon.

2.3.1 OVERVIEW OF PAST LITERATURE

The short-run underpricing phenomenon has long puzzled financial economists. Early studies by Reilly and Hatfield (1969), Stoll and Curley (1970), Fisher and McDonald (1972) and Logue (1973) demonstrate that issuers have a tendency to set the offer price of new issues at below the market-clearing price. This downward bias in the offer price results in the stock price of IPOs to appreciate sharply on the first day of trading. Consequently, an investor who is allocated a share in the IPO is likely to earn positive abnormal return in the immediate post-issue market (Ibbotson, 1975; Krigman, et al., 1999; Ritter and Welch, 2002).

Probing further, Barry, et al. (1998) reveal that the degree of underpricing varies widely across IPOs. Apart from differences in market capitalization, firm age and other firm characteristics (Loughran, et al., 1994), the contractual mechanism used in the IPO process also plays an instrumental role in determining the extent of the underpricing. By observing the relation between the offer price and initial filing range, Hanley (1993)

uncovers that IPOs that are priced above the initial filing range receive higher valuations in the immediate secondary markets than the rest of the IPOs. This suggests that issuers in the domestic market generally fail to fully incorporate the information on investor demand when setting the offer price, causing the stock price to rise considerably on the first day of trading (Lowry and Schwert, 2002).

As a matter of fact, the underpricing phenomenon is not constrained to just the U.S. stock market. Beyond the U.S borders, IPO underpricing is prevalent in many countries. Isa (1993) and Husson and Jacquillat (1989) note that the magnitude of underpricing ranges from a meager four percent for French IPOs to almost eighty percent for Malaysian IPOs. While the extent of underpricing fluctuates substantially across various stock markets due to the disparity in institutional constraints, contractual mechanisms and firm characteristics (Loughran, et al., 1994), the resilience of the underpricing phenomenon, which has extended to nearly every nation, has displayed absolutely 'no signs of its imminent demise' (Ritter, 1998).

2.3.2 POSSIBLE EXPLANATIONS

Continuous research seeks to explain the persistence of the underpricing phenomenon. Providing first insights to this 'mystery' is the seminal paper by Ibboston (1975). The article sets the stage for subsequent studies to examine the underpricing puzzle in greater detail.

The explanations for the underpricing phenomenon can be broadly classified into two schools of thought (Ritter and Welch, 2002): the asymmetry information based school of thought proposed by Rock (1986), Benveniste and Spindt (1989) and Welch (1992) and the symmetry information based school of thought advocated by Tinic (1988), Boehmer and Fishe (2001) and Shiller (1988). Segregating the two schools of thought is the fine line hinging on researchers' assumption made on the informational efficiency of the IPO market. We briefly discuss the two schools of thought below.

2.3.2.1 ASYMMETRY INFORMATION BASED THEORIES

Baron (1982), Parsons and Raviv (1985) argue that the IPO market is characterized by pronounced informational asymmetries. Pointing to the fact that IPO is the first issue of securities by a company to the general public (Saunders and Cornett, 2001; Ross, et al., 2002), the amount of information available to the public about the IPO firm is thus very limited (Rao, 1993; Jenkinson and Ljungqvist, 2001). This, coupled with the adverse selection problem (Akerlof, 1970) and moral hazard issue (Holmstrom, 1979), aggravates the information scarcity situation, rendering the valuation of the IPO a major challenge.

Recognizing that there is a general lack of information transfer between the pre-issue owners and the investing public, Rock (1986) further postulates that the level of information possessed by different groups of investors is not uniformly distributed too. In his winner's curse hypothesis, the researcher posits that the ability of the more informed investors to crowd out the uninformed investors from the good quality issues inevitably

results in the biased allocation of the good quality IPOs in favor of the more informed investors, leaving the remaining poor quality IPOs in the hands of the less informed individuals. By imputing a discount to the IPO price, issuers attempt to compensate the less informed investors for the inherent disadvantage they experience in the IPO market (Koh and Walter, 1989; Keloharju, 1993).

Benveniste and Spindt (1989), Benveniste and Wilhelm (1990) and Spatt and Srivastava (1991) offer an alternative explanation to the underpricing phenomenon. Termed as the information revelation theory, the researchers rationalize that underpricing is an essential step to induce investors to truthfully reveal their expectations and information about the IPO firms during the bookbuilding process (Sherman, 2000). Consistent with the hypothesis, Hanley (1993) and Barry, et al. (1998) demonstrate that IPOs with upward revision in offer price are typically associated with greater levels of underpricing. Not surprisingly, investors who have indicated their positive expectations of the firms' growth prospects and demonstrated willingness to purchase the IPOs at higher prices must be rewarded via some forms of deliberate underpricing.

Adding on to the above, other theories hinging on the asymmetric information assumption have also been put forth to explain the underpricing phenomenon. The signaling model (Allen and Faulhaber, 1989; Welch, 1989; Chemmanur, 1993) and the investment bank monopsony power theory (Baron, 1982; Habib and Ljungqvist, 2001) are just two examples documented in the literature. On closer inspection, the asymmetric information based theories appear to share the common belief that underpricing is a

'positive phenomenon' as it encourages greater market participation, and in turn enhances greater market efficiency in an information-asymmetrical IPO market.

2.3.2.2 SYMMETRY INFORMATION BASED THEORIES

Much of the explanations for underpricing have evolved around the notion of asymmetric information. Explanations that do not rely on this assumption include the lawsuit avoidance hypothesis which proposes that issuers intentionally undervalue their IPOs so as to reduce their exposure to future lawsuits and legal liability (Hughes and Thakar, 1992; Tinic, 1988). Corporate control considerations might have also contributed to the underpricing phenomenon. Boehmer and Fishe (2001) suggest that underpricing leads to greater market liquidity and larger ownership dispersion, indirectly making it more difficult for 'outside' investors to challenge the management team (Brennan and Franks, 1997; Boot and Chua, 1996).

In addition, studies in the field of behavioral finance have shown that market psychology do play an important role in the underpricing of IPOs. The impresario hypothesis (Shiller, 1988) postulates that underwriters deliberately price new issues below the market-clearing price so as to generate greater publicity and promote investor enthusiasm among clienteles. Congruent to this perspective, Shiller and Pound (1989) posit that investors are not perfectly rational, hence any increase in investor enthusiasm between the offer date and the aftermarket would inevitably result in short-term underpricing.

Despite the numerous explanations put forth to explain the underpricing phenomenon, Ritter and Welch (2002) show that none of the theoretical reasons holds the key to the underpricing puzzle. In the concluding statement, Ritter and Welch (2002) argue that 'it is not so much of which model is right, but more a matter of the relative importance of different models' that actually determines the degree of underpricing in each unique IPO.

2.4 LONG-RUN UNDERPERFORMANCE PHENOMENON

2.4.1 OVERVIEW OF PAST LITERATURE

The returns performance of IPOs in the post-issue market has attracted considerable attention in academia. Although the remarkable price appreciation witness on the first day of trading is 'gratifying' to investors (McCarthy, 1999), the long-run performance of IPOs, unfortunately, 'did not fare so well' (Stoll and Curley, 1970).

Preliminary evidence of the 'lackluster' aftermarket performance of IPOs is documented by Ibbotson (1975), Stern and Bornstein (1985) and Buser and Chan (1987). Using a sample of 1,526 U.S. IPOs with listing dates between 1975 and 1985, Ritter (1991) demonstrates that IPO firms generally underperform their industry peers by approximately twenty-seven percent over a three year holding horizon. Correspondingly, a strategy of investing in IPOs at the end of the first trading day and holding them over three years would have left the investor with significantly less wealth than if he had invested in a portfolio of seasoned firms already listed on the stock exchange. In the long run, IPOs appear to be overpriced.

2.4.2 POSSIBLE EXPLANATIONS

There are two main strands of explanations for the long-run underperformance of IPOs. The first strand of reasoning is the 'divergence of opinion hypothesis' (Miller, 1977). Based on the assumption that investors hold divergent views about the growth prospects of firms, Miller (1977) argues that the immediate post-issue stock price performance of IPO firms reflect the market valuations of the most optimistic investors. Over time, as investors obtain more information about the firms, the variances in opinions between the highly optimistic investors and the general investing public narrow and converge towards the mean. This results in a general price decline of the IPO firms over the longer horizon.

The second strand of reasoning is the 'hot issue' market hypothesis (Ritter, 1998). Defining the 'hot issue' market as a period marked with extraordinary high IPO volumes and high initial returns, Aggarwal and Rivoli (1990) and Loughran, et al., (1994) find that IPOs listed during the 'hot issue' markets report extremely negative market-adjusted long run returns and perform significantly poorer than the rest of the IPOs (Ritter, 1998). Loughran (1993) infers that this is due to IPO firms being able to time their listings during market peaks and take advantage of the windows of opportunity to push for higher valuations. However, the attractive return performances in the first few days of trading are not sustainable. Over the longer-horizon, IPO firms underperform the market and their industry peers. This systematic evidence of negative long-run abnormal returns has nevertheless been shown to be consistent with the efficient market hypothesis (Shaw, 1971; Ibbotson, 1975).

2.5 INVESTMENT BANKS

2.5.1 INTERMEDIARY FUNCTION

Numerous studies have documented the importance of investment banks in the IPO process. By providing a suite of financial services to IPO firms, investment banks endeavor to bridge firms in search of capital with investors seeking investment opportunities (Fang, 2005).

As discussed in Section 2.3.2.1, the IPO market is characterized by pronounced information asymmetries. Given the unique role of investment banks in the financial markets and their ability to gain access to proprietary information, investment banks are therefore in an excellent position to certify and reassure investors that the offer price is truly consistent with inside information (Booth and Smith, 1986; Ross, et al., 2002).

However, determining the correct offer price is never straightforward (Ross, et al., 2002). An offer price that is set too high or too low imposes huge costs to the IPO firm either in terms of an unsuccessful IPO (if the issue is priced too high) or opportunity costs to pre-issue shareholders (if the issue is priced too low). As McCarthy (1999) aptly describes, the 'IPO valuation is as much an art as a science'. While the presumed intention of investment bank is to obtain the best price for the IPO firm, the overwhelming literature of positive first-day return garner less convincing evidence that underwriters are able to accomplish this task consistently.

Loughran and Ritter (2002) reason that investment banks are faced with a number of conflicting goals. On the demand side, investors want to pay the lowest price for the IPO stocks while on the supply side, issuers want to get the highest price for their IPOs. In an effort to strike a balance, investment banks have traditionally applied a discount of ten to twenty percent to the IPO's estimated value (McCarthy, 1999). More recently, empirical studies indicate that investment banks are leaving more money on the table than necessary and have allegedly been reported to allocate a disproportionate fraction of the underpriced issue to favored clienteles (Pulliam and Smith, 2000; Pulliam and Smith 2001). This suggests that investment banks, driven by private motives, might not always be acting in the best interests of the issuer and the investors at large. Hence, the choice of the underwriter is of extreme importance in ensuring that the issuer obtains maximum proceeds from the IPO.

2.5.2 INVESTMENT BANK REPUTATION

In the investment banking industry where reputation is a highly valued and much guarded asset, any acts of dishonesty could have serious repercussions to the reputation of the investment banks. Unless the short-term profits from dishonesty far outweighs the present value of future income, investment banks will find it sub-optimal to derail from the best interests of the issuers and public investors (Fang, 2005). In particular, established investment banks commanding large market shares are exceptionally vulnerable to missteps and thus have less incentives to act opportunistically, given the substantial 'reputation capital' at stake (DeLong, 1991; Dunbar, 2000). To preserve their reputation capital, high reputation investment banks adopt a more stringent set of

evaluation standards when selecting underwriting assignments. In light of this, good quality firms could signal to potential investors their low risk profile by hiring investment banks that rank high in prestige (Fang, 2005).

Intuitively, the more reputable the investment bank, the higher is the quality of the underwriting service. Chemmanur and Fulghieri (1994) and Booth and Smith (1986) propose that IPOs underwritten by high reputation underwriters face lower risk of short-term underpricing and are more likely to generate better returns over the longer-term horizon. To test this intuition, researchers have devised a number of proxies to measure the underwriter reputation (see, among others, Logue, 1973; Beatty and Ritter, 1986; Johnson and Miller, 1988; Carter and Manaster, 1990; Megginson and Weiss, 1991). Carter and Manaster's (1990) 'tombstone' announcement-based ranking and Megginson and Weiss's (1991) relative market share-based ranking are among the more popular ones used in empirical research.

Notably, prior IPO studies on the reputational influence of underwriters have drawn mixed conclusions. For instance, while earlier studies find that IPOs underwritten by high reputation investment banks are associated with smaller extent of underpricing (Fisher and McDonald, 1972; Logue, 1973; Carter, et al., 1998), recent data looking at the second half of 1990s have noted that this relationship has undergone significant structural shift over time (Beatty and Welch, 1996; Cooney, et al., 2000). The later findings contradict the widely known 'certification hypothesis' and implies that IPOs

underwritten by high reputation underwriters are instead characterized by greater mispricing.

Similarly, studies analyzing the relation between underwriter reputation and long-run returns performance have not been able to obtain consistent evidence either. Although some studies have shown that underwriter reputation is positively correlated with long-run stock returns performance (Michaely and Shaw, 1994; Carter, et al., 1998), other studies have however noted no significant relation between the two parameters (Logue, et al., 2002; Chemmanur and Krishnan, 2007). In view of the inconclusive evidence on the relation between underwriter reputation and IPO returns, the reputational impact of underwriters thus presents an interesting area for in-depth research.

2.6 OVERVIEW OF PAST SINGAPORE-BASED IPO STUDIES

Notwithstanding the relatively small size of the Singapore market, there have been a number of studies done on the new issues in the country. As early as 1980s, Dawson (1984), Koh and Tee (1985) and Wong and Chiang (1986) have documented evidence of prevalent short-run underpricing in the domestic market. By examining IPOs that were listed between 1970s and 1980s, the researchers find that the average initial return ranges from 27 percent (Koh and Walter, 1989) to 56 percent (Wong and Chiang, 1986). Notably, the degree of underpricing appears to have weakened considerably over the years as the Singapore economy matures. A recent study by Reber and Fong (2006) points to an initial return of approximately 18 percent using data between 1998 and 2000.

This is consistent with the conjecture of Saunders and Lim (1990), which hypothesizes underpricing to decrease with time as issuers and investors learn from past experiences.

In fact, the distinctive institutional arrangements governing the new issues in Singapore has opened new opportunities for researchers to perform studies that are not achievable using data sets from other countries. In particular, Koh and Walter (1989) have harnessed the unique data availability to prove the empirical relevance of Rock's (1986) winner's curse hypothesis. Taking this line of research further, Reber and Fong (2006) subsequently demonstrate the winner's curse adverse selection problem to be the most significant contributor to the underpricing phenomenon among the various asymmetry information based theories put forth on underpricing (see Section 2.3.2.1).

Given the unique institutional arrangements of the Singapore IPO market, coupled with the distinctive data availability on subscription levels, rationing mechanism and listing information, the domestic market holds a wealth of knowledge that awaits further exploration. A detailed discussion on the country's listing procedures and institutional framework is presented in Section 3.1.3 and 3.1.4 respectively.

2.7 CONCLUDING REMARKS

This chapter provides an overview of past research that has been done on initial public offering. Emphasis is placed on two widely documented market anomalies namely the short-run underpricing puzzle and long-run underperformance phenomenon. In addition, we also furnish a brief account of the prior works on investment banks and their role in the IPO process. Concluding the chapter, we provide a summary of the more prominent works done on the Singapore IPO market thus far.

CHAPTER 3

RESEARCH DESIGN

3.1 RESEARCH SETTING

As our study focuses on the Singapore market, we will delicate this chapter to provide an overview of the macroeconomic environment in Singapore. First, in Section 3.1.1, we examine the key developments in the financial market. This is followed by a brief introduction of the Singapore stock exchange in Section 3.1.2. In Sections 3.1.3 and 3.1.4, we outline the IPO process and discuss the unique institutional arrangements prevailing in the domestic IPO market.

3.1.1 SINGAPORE ECONOMY AND FINANCIAL SECTOR

The Singapore economy enjoyed a period of prosperity from 1987 to 1996 as the nation witnessed a decade of strong and sustained GDP (Gross Domestic Product) growth since the beginning of 1987[4]. Economists attributed the rapid growth to fundamentally sound macroeconomic management and well-engineered development policies. This, coupled with the escalating growth in neighboring East Asian economies, fuelled the rise of Singapore as one of the "four tigers" in Asia[5].

[4] The growth rate of Gross Domestic Product (GDP) was relatively high during the period 1987 to 1996 and remained constantly above the six percent mark. In four of the ten years, double-digit economic growth was recorded (1988, 1989, 1993 and 1994). Per capita GDP also increased steadily from S$15,613 in 1987 to S$35,552 in 1996. Inflation was, however, kept in check at below 3.5 percent per annum.
For more details of the various economic indicators, please refer to the official website of the Singapore Department of Statistics at http://www.singstat.gov.sg.

[5] A term coined by economists to connote a country of rapid economic growth. The other three countries that were conferred the title of Asian 'tigers' were Hong Kong, Taiwan and South Korea. Please refer to the research report by Page (1994) entitled 'The East Asian Miracle: An Introduction" dated in 1994.

The good days of economic prosperity came to an abrupt halt in 1997 as East Asian economies were hit by one of the worst financial crisis. Within a year, the stock markets around the region such as Indonesia, Malaysia, Philippines South Korea and Thailand lost more than sixty percent of their value (The Economist dated March 7, 1998). Inevitably, Singapore's small and open economy felt quite acutely the tremors of the financial crisis. Its stock market experienced a sharp sell-off, plunging more than forty percent amid plummeting investor confidence and rising worries of a recession. In 1998, the country recorded its first negative growth in a decade.

In spite of the economic downswing, Singapore was less adversely affected vis-à-vis its regional neighbours. The economic crisis, however, triggered serious scrutiny at the structure of the country's financial sector, precipitating reforms that were to be rolled out in the upcoming five years.

The first wave of reforms came in 1998 when the government announced its plans to progressively open up the financial sector and allow market forces greater free play. The banking sector, insurance companies, stockbrokerages and fund management industry were the focus of this liberalization initiative[6]. The move introduced steeper

[6] In a speech given by Prime Minister, Lee Hsien Loong (Chairman, Monetary Authority of Singapore) at the MAS Work Plan Seminar on 3 April 2000, the Prime Minister provided an account of the milestones achieved under the financial liberalization programme. A summary of the reforms is outlined below:

i) Banking: Qualifying Full Bank licenses were introduced to offshore banks, with the aim of promoting greater competition in the banking sector. Also, limits on the foreign shareholdings were removed to give local banks greater autonomy and operational flexibility.

ii) Stock market: SGX became Asia-Pacific's first demutualised and integrated securities and derivatives exchange. Listing requirements were revised to give more flexibility to growth enterprises and foreign companies. (Please refer to the next page for continuation of this footnote.)

competition to the financial industry, forcing operators to concentrate on their core competencies and increase efficiency. Liberalization also prompted a spate of high profile domestic and regional mergers and acquisitions (M&A) deals, including the much-publicized consolidation of the six local banks into just three[7]. The gradual liberalization of the financial sector helped to strengthen the fundamentals of the financial sector and in turn fostered Singapore's position as a global financial hub.

3.1.2 CHARACTERISTICS OF SINGAPORE EXCHANGE

The Stock Exchange of Singapore (SES) was inaugurated in 1973. Emanated from the termination of the currency interchangeability system between Singapore and Malaysia, the stock exchange underwent a number of major revamps over the years. For instance, in December 1999, SES merged with Singapore International Monetary Exchange (SIMEX) to form the Singapore Exchange (SGX).

To date, the SGX operates two main markets for the trading of stocks. They are the Main Board and the Stock Exchange of Singapore Dealing and Automated Quotation (SESDAQ) respectively. Apart from the fact that the Main Board hosts the more established and higher market capitalization companies, the listing requirements of the

iii) Debt market: Restrictions on borrowing Singdollar (S$) were relaxed to enable foreign players to issue S$ bonds. More Singapore Government Securities were issued and maturity profile was extended to add depth and liquidity to the bond market.
iv) Fund management: More funds (for example, Central Provident Funds) were made accessible for fund management. New tax incentives were introduced to attract fund managers to the local scene.
v) Insurance: Insurance brokers who met the requirements were allowed to enter the insurance market. Limits on the foreign shareholdings in local insurance companies were abolished.

[7] The three M&A deals were:
i) Acquisition of Post Office Savings Bank (POSB) by The Development Bank of Singapore (DBS) in 1998;
ii) Acquisition of Overseas Union Bank (OUB) by United Overseas Bank (UOB) in 2001;
iii) Acquisition of Keppel TatLee Bank by Oversea-Chinese Banking Corporation (OCBC) in 2001.

Main Board are also more stringent than that of SESDAQ. Table 3.1 outlines the salient differences in listing requirements for both the Main Board as well as SESDAQ.

With reference to Table 3.1, a firm needs to satisfy a more restrictive set of criteria in order to be listed on the Main Board. Particularly, a firm has to demonstrate a history of profitable operations by meeting one of the following criteria:

a) Cumulative consolidated pre-tax profit of at least S$7.5 million for the preceding three years and a minimum pre-tax profit of S$1 million for each of those three years, or
b) Cumulative consolidated pre-tax profit of at least S$10 million for the preceding one or two years, or
c) Market capitalization of at least S$80 million calculated based on the issue price and post-invitation issued share capital.

In comparison, SESDAQ does not dictate any of the above profitability requirements. Less stringent requirements on SESDAQ allow small and medium-sized enterprises to raise capital more easily for their operations and investments. However, should the SESDAQ-listed company wish to be listed on the Main Board after two years of listing on SESDAQ, it would have to comply with the same listing requirements as that of the other Main Board-listed companies.

TABLE 3.1: Listing Requirements of Singapore Exchange (SGX)

The table shows the listing requirements for the two markets of the Singapore Exchange (SGX) that is, the Main Board and the Stock Exchange of Singapore Dealing and Automated Quotation (SESDAQ). Specifically, a company may list on the Main Board if it meets any of the three criteria (Criteria 1, 2 and 3) below. The purpose of having three criteria is to cater to a wide spectrum of companies with different business models. The table is adapted from SGX website at http://www.mas.gov.sg.

	Main Board			**SESDAQ**
	Criteria 1	**Criteria 2**	**Criteria 3**	
Pre-tax Profits	Cumulative pre-tax profit of at least S$7.5 million over the last 3 consecutive years, with a pre-tax profit of at least S$1 million in each of those 3 years	Cumulative pre-tax profit of at least S$10 million for the last 1 or 2 years	Not applicable	Nil. Business is expected to be viable and profitable, with good growth prospects
Market Capitalization	Not applicable	Not applicable	Market capitalization of at least S$80 million at the time of the initial public offering, based on the issue price and post-invitation issued share capital	Not applicable
Shareholding Spread	25% of issued shares in the hands of at least 1,000 shareholders. (For market capitalization > S$300 million, shareholding spread will vary between 12-20%)			At least 500,000 shares or 15% of issued shares (whichever is greater) in the hands of at least 500 shareholders
Operating Track Record	3 years	Not applicable	Not applicable	A company with no track record has to demonstrate that it requires funds to finance a project or develop a product, which must have been fully researched and costed
Continuity of Management	3 years	1 or 2 years as the case may be	Not applicable	Not applicable

3.1.3 THE NEW ISSUE PROCSS IN SINGAPORE

The IPO is seen as an important milestone in a company's history. The entire listing process takes on average twelve to sixteen weeks, with preparatory works commencing very much earlier. The process begins with the company submitting its listing application and prospectus, accompanied by other necessary documentations, to SGX for review[8].

Besides the stringent quantitative requirements specified in Table 3.1, the Singapore Exchange also assesses the qualitative factors of the company such as its growth potential and integrity of the management when evaluating the company's application for listing. Upon meeting the listing requirements to the satisfaction of SGX, the company is conferred the eligibility to list. The company is then able to lodge its preliminary prospectus with the Monetary Authority of Singapore (MAS). MAS subsequently publish the company's preliminary prospectus on the Internet for public comments.

After the completion of the mandatory review by the two regulatory bodies (SGX and MAS), the company proceeds to file the final prospectus with MAS. Notably, the prospectus is an important document in an IPO. Apart from providing insights of the company's fundamentals through the historical accounting information, the prospectus encompasses a wealth of other useful details such as the objective of the issue, the issue price, the method of allotting the shares as well as the one-year-ahead profit forecasts

[8] Prior to this, the company could arrange for a consultation session with SGX to resolve specific issues. This would speed up the listing process and reduce possible additional costs arising from any delays.

made by the management. The filing of the final prospectus signifies the end of the prospectus registration stage and the company is ready for the launch of its IPO.

The IPO is officially launched when the company's prospectus is disseminated to the public. Interested investors are invited to subscribe for the shares within the offer period. The payment for the IPO can be made via the cashier's order or through an electronic share application. Upon the closing of the offer, the IPO shares are allotted pursuant to the basis spelt out in the prospectus. The outcome of the issue, together with the level of the subscription rate, is publicly announced and the details are made known to the public through the media for investors' information. With all required documentations properly filed with the regulatory bodies, the issuer is admitted to the Official List of SGX. Trading finally commences on a date that is determined by the Exchange either on a deferred settlement basis or a ready basis. Figure 3.1 provides a simple illustration of the entire IPO process.

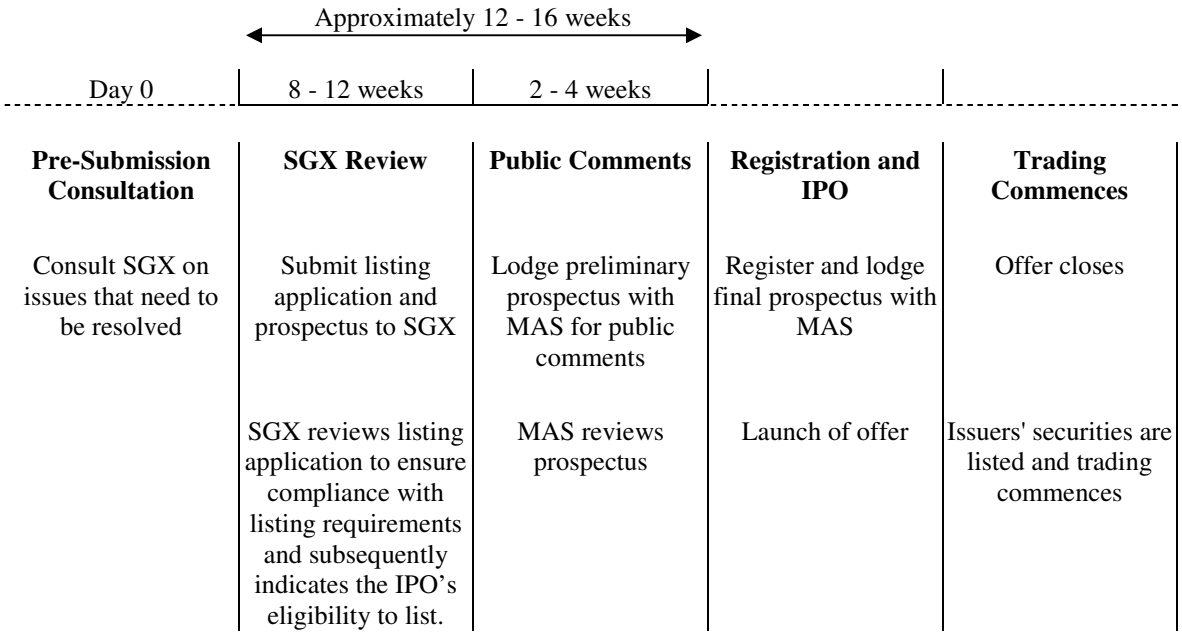
To ensure that the IPO goes smoothly, the company typically engages a Singapore-based financial institution, usually a member company of SGX, to be its sponsor and lead manager. Unlike in the United States where issuers were constrained by the Glass-Steagall[9] Act in their choice of the underwriter, the company seeking a listing in Singapore is free to choose the issue manager and/or underwriter under the Securities Industry Act (Saunders and Lim, 1990; Tan et al., 1999). The role of the issue manager is

[9] The Glass-Steagall Act essentially separates commercial banking from investment banking. Under this provision, commercial banks are prohibited from simultaneously accepting deposits and underwriting securities. The Act was repealed in 1999 with the passing of the Financial Modernization Act.

to assist the firm in the managing of the entire IPO process. From conducting due diligence assessment on the company, drafting its prospectus to the final submission of the listing application on behalf of the issuer, the issue manager works very closely with the issuer to ensure that the IPO would be a successful one. The responsibilities of the issue manager are detailed in Section 3.3.4.

FIGURE 3.1: Indicative Timeline for the Listing Process

The figure below illustrates the timeline for the listing process. The figure is adapted from SGX website at http://www.mas.gov.sg.



3.1.4 INSTITUTIONAL ARRANGEMENTS

A unique feature of the domestic IPO market lies in the share rationing process when over-subscription occurs. As documented by Koh and Walter (1989), IPO over-subscription is extremely pervasive in the Singapore IPO market. During the period spanning from 1998 to 2000, an average issue in Singapore is oversubscribed by approximately fifty-six times (Reber and Fong, 2006). In view of the over-subscription phenomenon, Rule 233(1) of the SGX Listing Manual emphasizes the need for a fair and equitable allotment of shares to the investor community.

To ensure an unbiased and even-handed share allocation process, the applicants to a typical Singapore IPO are usually grouped into categories depending on the number of shares they subscribe. Applicants within the same size-of-application category enjoy the same probability of receiving an allocation and consequently each applicant receives a fair game. In contrast, investors in other countries could be denied entry to a specific IPO simply due to biasness of the issue managers or underwriters, who are often given the full discretion over the allocation of the IPO shares (Lee, et al., 1996).

While the applicants for the same number of shares are treated equally, Saunders and Lim (1990) however observe a tendency for issuers to skew the allocation of shares towards the group of smaller investors. The general bias towards smaller investors is partly prompted by the listing criteria laid down by SGX which specified upfront the shareholding distribution requirements imposed on each IPO in accordance to the size of their offer. Specifically, Rule 234 of the SGX Listing Manual states that a proportion of

the IPO should, at a minimum, be distributed to a pool of investors. The details of the listing requirements on shareholding distribution are outlined in Table 3.2 below.

TABLE 3.2: Listing Requirements on Shareholding Distribution

The table shows the distribution requirements for the respective offer sizes. This set of requirements is applicable to both the Main Board-listed companies as well as the SESDAQ-listed companies. The shareholdings of the applicant and its associates must be aggregated and is treated as one single holder. It is also important to note that preferential allotments made pursuant to Rule 234 of the SGX Listing Manual is to be excluded from this requirement. Rule 234 states that the issuer may reserve up to 10% of the offered securities (or 25%, in the case of SESDAQ issuer) for allocation and allotment to its employees, directors, customers, suppliers and persons who have contributed to the success of the firm. The table is adapted from SGX website at http://www.mas.gov.sg.

Total Offer Size (S$ million) ("O")	**Distribution**
O < 75	At least 40% of the invitation shares or S$15 million whichever is lower, must be distributed to investors, each allotted not more than 0.8% of the invitation shares or S$300,000 worth of shares whichever is lower.
75 ≤ O < 120	At least 20% of the invitation shares must be distributed to investors, each allotted not more than 0.4% of the invitation shares.
O ≥ 120	No requirement applicable.

In addition to the unique share rationing process, there also exist other systematic differences between the domestic IPO market and other international markets in terms of the listing requirements and contractual mechanisms used in the flotation process (Lee, et al., 1996). Researchers (McStay, 1987; Koh and Walter, 1989; Reber and Fong, 2006) postulate that the unique institutional framework of the local IPO market could have significant implications on the short-run underpricing puzzle and long-run underperformance phenomenon observed in Singapore, possibly leading to variations in

the extent of the anomalies between the local market and other IPO markets. This drives the motivation behind our study.

3.2 DATA SOURCES AND SAMPLE SELECTION

Our study examines the IPOs listed on the Singapore Exchange ("Exchange") over the period spanning from January 1, 1997 to August 22, 2008. The sample period is determined by the availability of the data and is unique as it compasses the Asian financial crisis in 1997 and 1998, the burst of the tech bubble in 2001, the September 11 terrorists' attacks on the U.S., the Severe Acute Respiratory Syndrome (SARS) epidemic incident in 2003 and the recent U.S. sub-prime crisis in 2008. The chain of events offers an exciting proposition to probe into the IPO short-run underpricing puzzle and long-run underperformance phenomenon against the backdrop of periodic economic downswings.

The data required for the study comes primarily from IPO prospectuses and Datastream financial database. Specifics of each offering including the number of shares issued, the number of shares offered by existing shareholders, the offer price, the issue manager involved, the closing date of subscription, the listing date, the company's incorporation date as well as other historical accounting data are hand-collected from each individual IPO prospectus filed with the Exchange. These prospectuses are publicly available and can be easily downloadable from SGX official website. In addition, supplementary data such as the daily stock prices of the IPO firms in the post-issue period, the returns performance of the market index and the accounting information of the size-and-industry matched firms are obtained from the Datastream financial database.

The sample consists of IPOs that have been listed on the Main Board and SESDAQ from January 1, 1997 to 22 August, 2008. These IPOs must meet the following selection criteria:

- The IPO has a complete set of listing information required for the analysis such as the offer price and offer size which is used to determine the reputation ranking of the issue manager.
- The IPO has a single issue manager assisting in the IPO process. All IPOs with either no issue manager or more than one issue manager are excluded from the study.
- The IPO relates to the listing of a corporate stock. As is common in previous IPO studies, real estate investment trust (REIT) issues and global depository receipts (GDR) are excluded to ensure results comparability and data consistency with prior literature (Loughran and Ritter, 1995; Teoh, et al., 1998; Kim and Ritter, 1999; Chemmanur and Krishnan, 2007).
- Lastly, the IPO must have at least one day of stock price data to allow us to estimate the initial return variable in the study. This is important as it indicates that the IPO is successfully listed on the stock exchange.

Our final sample stands at 384 IPOs over the eleven years eight months period with the most number of observations in 2004 (sixty IPOs) and the least in 1997 and 1998 (eight IPOs each). The aggregated gross proceeds from IPOs cumulate to more than S$10.7 billion. The year 1999 also saw gross proceeds almost reaching S$1.8 billion, the highest amount of gross proceeds registered in a single year. To ensure the reliability and

accuracy of the data analysis, great care is exercised at every stage of the data collection process.

3.3 VARIABLES DEFINITION

3.3.1 PRICE-TO-EARNINGS (PE) RATIO

The PE ratio is one of the accounting multiples that have been widely used to determine the underlying value of the IPO. In fact, practitioners and researchers often attempt to infer the valuation of an IPO by comparing the ratio against that of similar firms in the market (Boatsman and Baskin, 1981; Alford, 1992; Kim and Ritter, 1999). Undoubtedly, the PE ratio is one of the important variables that the Exchange pays a great deal of attention to when evaluating the listing application (Lee, et al., 1996).

The study examines the PE ratio of the IPO firms. Information on the PE ratio is extracted from the prospectus, under the section on "invitation statistics". The PE ratio is measured by taking the offer price divided by the net earnings-per-share (EPS) of the firm (where net EPS is the net earnings obtained from the latest audited financial statements and based on the number of shares held prior to the IPO). In mathematical notation, PE ratio is expressed as follows:

$$PE_i = \frac{\text{Offer Price}_i}{\text{Net EPS}_i} \qquad (1.1)$$

where,

Offer Price$_i$ = *Offer price of the issuing firm i, and*

Net EPS$_i$ = *Net Earnings-Per-Share of the issuing firm i, taken as:*
Net earnings based on the latest audited financial statements
Divided by the number of shares held prior to the IPO

Similar to Kim and Ritter (1999), we shall benchmark the PE ratio of the IPO firm against the PE ratio of a non-issuing size-and-industry matched firm (MF) for comparison purposes. The PE ratio of the size-and-industry matched firm is obtained from the Datastream financial database and is defined as the ending market price of the matched firm as at the IPO firm's closing subscription date divided by the net EPS reported in the matched firm's latest audited financial statements. Simply, the formula used to calculate the PE ratio of the size-and-industry matched firm is as follows:

$$\text{PE}_{\text{MF}} = \frac{\text{Market Price}_{\text{MF}}}{\text{Net EPS}_{\text{MF}}} \qquad (1.2)$$

where,

Market Price$_{MF}$ = *Ending market price of the size-and-industry matched firm MF as at the IPO firm's closing subscription date, and*

Net EPS$_{MF}$ = *Net Earnings-Per-Share of the size-and-industry matched firm MF based on the latest audited financial statements*

The portfolio of size-and-industry matched firms represents the non-issuing publicly traded companies that are already listed on SGX. As discussed, the portfolio of size-and-industry matched firms is important as it provides the basis for evaluation. These companies are selected based on a set of matching criteria. The details of the matching procedures are outlined in Section 4.1.

3.3.2 INITIAL RETURN (IR)

Decades of research have shown that IPOs are underpriced. To reflect the extent of mispricing, the initial stock return (or first-day return) measure is commonly used as a proxy for mispricing in the IPO literature. This study analyzes three different measures of initial return namely raw initial return, market-adjusted initial return and matched firm-adjusted initial return. They are defined as follows.

Raw initial return *($R_{i,0}$)* is measured as the difference between the first day closing price and the offer price of the IPO firm. Mathematically, it is denoted as follows:

$$R_{i,0} = \frac{P_{i,t} - P_{i,0}}{P_{i,0}} \tag{2.1}$$

where,

$P_{i,t}$ = *Closing market price of the issuing firm i on day t, where t=1 and*

$P_{i,0}$ = *Offer price of the issuing firm i*

Market-adjusted initial return ($MAR_{i,0}$) is measured as the raw initial return of the IPO firm less the contemporaneous return of the Straits Times Index (STI) [10]. Mathematically, it is denoted as follows:

$$MAR_{i,0} = R_{i,0} - R_{m,0} \tag{2.2}$$

[10] The Straits Times Index (STI) is a value-weighted index based on a representative portfolio of companies listed on the Singapore Exchange (SGX). It is the stock market index frequently used in Singapore.

where,

$R_{i,0}$ = *Raw initial return of the issuing firm i as derived in Equation 2.1, and*

$R_{m,0}$ = *Return on STI as at IPO listing date*

Matched firm-adjusted initial return ($MFAR_{i,0}$) is measured as raw initial return of the IPO firm less the contemporaneous return of the non-issuing size-and-industry matched firm. Mathematically, it is denoted as follows:

$$MFAR_{i,0} = R_{i,0} - R_{MF,0} \quad (2.3)$$

where,

$R_{i,0}$ = *Raw initial return of the issuing firm i as derived in Equation 2.1, and*

$R_{MF,0}$ = *Return of the non-issuing size-and–industry matched firm MF as at IPO listing date*

As described above, the market-adjusted initial return and matched firm-adjusted initial return have explicitly been adjusted for movements in the market index and the corresponding stock price performances of the non-issuing size-and-industry matched firms respectively. This is to control for changes in market conditions, industry effects as well as possible size bias that could potentially affect the robustness of our results (Ibbotson and Jaffe, 1975; Loughran and Ritter, 1995).

In summary, mispricing occurs when any of the three measures *($R_{i,0}$, $MAR_{i,0}$* or *$MFAR_{i,0}$)* computed from Equations 2.1, 2.2 and 2.3 returns a value that is not equals to zero. Specifically, if either $R_{i,0}$, $MAR_{i,0}$ or $MFAR_{i,0}$ is positive, the IPO is said to be underpriced. Conversely, if $R_{i,0}$, $MAR_{i,0}$ or $MFAR_{i,0}$ is negative, then the IPO is said to be overpriced.

3.3.3 LONG-RUN RETURNS (LR)

Numerous studies have demonstrated that IPOs underperform in the long run. To examine the aftermarket stock performance of IPOs, the study tracks the daily share price movements of each IPO firm up till its second anniversary starting from its first day of trading. Due to data availability constraints, we are only able to obtain the daily stock returns data till 22 August 2008. Hence, the long-run returns computation can only be cumulated up till 22 August 2008.

The choice of a two-year holding horizon appears to be the most appropriate for the study after weighing the trade-off between greater accuracy (a longer returns horizon might provide more insights on the extent of the long-run underperformance) and better sample representation (a shorter return horizon, on the other hand, would lead to a larger sample size and a better representation of the population). Further, previous studies have shown that a two-year horizon is adequate when analyzing the aftermarket performances of IPO firms (Agarwal, et al., 2003).

In this study, a year is defined as the summation of twelve months with each month comprising of twenty-one trading days (Ritter, 1991; Loughran and Ritter, 1995). Like prior studies, we exclude the initial return of the IPO from the long-run returns computations. This is because it is often difficult for an investor to obtain the shares of an IPO at the offer price, in view of the prevalent over-subscription phenomenon seen in most IPOs (Loughran and Ritter, 1995). Thus, when computing the long-run returns of IPOs, researchers typically define the first-month return as the cumulation of daily compounded returns starting from the second trading day (event day 2) to the twenty-second trading day (event day 22) and henceforth. In aggregate, a twenty-four months buy-and-hold returns[11] would thus consist of daily compounded returns spanning over 504 trading days (12 months multiplied by 21 trading days per month) extending from listing date + 1 through listing date + 504.

Varying time horizons for the long-run returns cumulation (three, six, twelve and twenty-four months) are examined in this study. To maximize the number of IPOs for each test, we adopt an approach whereby an IPO would be included in the analysis as long as it has sufficient data for the designated test. To illustrate, a firm that is listed on January 1, 2008 might not have sufficient share price data for the twelve-month returns analysis but would instead have sufficient share price data for the six-month and three-month returns analyses. Hence, the IPO would be included in the later tests only.

[11] Loughran and Ritter (1995) argue that the buy-and-hold strategy avoids the problems caused by frequent transactions that could arise from a rebalancing approach.

Like in the initial return analysis, the long-run returns analysis looks at three different measures for the returns computation namely the raw buy-and-hold returns, the market-adjusted buy-and-hold returns and the matched firm-adjusted buy-and-hold returns. They are defined as follows.

Raw buy-and-hold returns *($BHR_{i,T}$)* is measured as the cumulation of the daily compounded returns from a buy-and-hold strategy where the IPO stock is purchased at a price equivalent to the market price at the end of the first trading day. Mathematically, it is denoted as follows:

$$BHR_{i,T} = \left[\prod_{t=Listingdate+1}^{T} (1 + R_{i,t}) - 1 \right] \tag{3.1}$$

where,

$R_{i,t}$ = *Raw return of the issuing firm i at event day t*

T = *Holding period ranging from 3 to 24 months, where Max T = Listing date + 504 trading days*

Market-adjusted buy-and-hold returns *($MABHR_{i,T}$)* is measured as the raw buy-and-hold returns of the IPO firm less the contemporaneous compounded returns of the Straits Times Index (STI). Mathematically, it is denoted as follows:

$$MABHR_{i,T} = \left[\prod_{t=Listingdate+1}^{T} (1 + R_{i,t}) - \prod_{t=Listingdate+1}^{T} (1 + R_{m,t}) \right] \tag{3.2}$$

where,

$R_{i,t}$ = *Raw return of the issuing firm i at event day t*

$R_{m,t}$ = *Return on STI at event day t*

T = *Holding period ranging from 3 to 24 months, where Max T = Listing date + 504 trading days*

Matched firm-adjusted buy-and-hold returns *($MFABHR_{i,T}$)* is measured as the raw buy-and-hold returns of the IPO firm less the contemporaneous compounded returns of the non-issuing size-and-industry matched firm. Mathematically, it is denoted as follows:

$$MFABHR_{i,T} = \left[\prod_{t=Listingdate+1}^{T} (1 + R_{i,t}) - \prod_{t=Listingdate+1}^{T} (1 + R_{MF,t}) \right] \quad (3.3)$$

where,

$R_{i,t}$ = *Raw return of the issuing firm i at event day t*

$R_{MF,t}$ = *Return of the non-issuing size-and–industry matched firm MF at event day t, and*

T = *Holding period ranging from 3 to 24 months, where Max T = Listing date + 504 trading days*

As noted in Equations 3.2 and 3.3, the same benchmarks have been used to adjust the returns measures for both the initial return and long-run returns analyses. This is to maintain consistency throughout the study. IPO long-run underperformance occurs when any of the three measures *($BHR_{i,T}$, $MABHR_{i,T}$* or *$MFABHR_{i,T}$)* registers a negative value.

3.3.4 ISSUE MANAGER REPUTATION RANKING (REP)

In comparison to the underwriter, the issue manager reputation ranking and its impact on the IPO process has been relatively unexplored in academic research. Because of the vital role issue managers play in taking a firm public in Singapore, this study shall focus solely on the reputational role of issue managers in the domestic IPO process. Some of the responsibilities of the issue managers are listed below:

(i) Conducting due diligence assessment on the company and providing professional advice to management;

(ii) Preparing the company for listing by ensuring that the documentations necessary for compliance with listing rules has been promptly submitted to the Exchange and all admission requirements are properly met;

(iii) Liaising with SGX on behalf of the company on all matters relating to the listing application;

(iv) Ascertaining that all relevant information have been appropriately disclosed in the prospectus.

In this study, we devise a three-tier issue manager reputation ranking (REP) based on some modifications of the Megginson and Weiss' (1991) relative market share methodology. Simply adopting Megginson and Weiss' (1991) relative market share approach in the study creates some problems in the calculating of the reputation measure. This is primarily due to the wave of mergers and acquisitions witnessed in the Singapore financial sector following the liberation initiative which was introduced in the middle of our sample period (see Section 3.1.1). To illustrate, many of the local banks and

investment institutions were urged by policy makers to merge with fellow peer institutions so as to reap economies of scale. As the reputation of the issue manager based on the Megginson and Weiss approach is determined by the gross proceeds of the issue manager over the entire sample period, issue managers which subsequently disappeared due to mergers and acquisitions would inevitably be allocated rankings that are biased downwards. Alternatively, combining the performance of several banks into one bank does not provide a well-rounded solution either as it distorts the true performance of the individual issue managers. To resolve the problem, we decide to adopt a 'twelve-month rolling' reputation ranking approach. This means that the reputation ranking of the issue manager will fluctuate depending on the extent of its IPO activities in each calendar year.

To elaborate, we first compute the relative market share that is attributable to individual issue manager for each calendar year, as follows:

$$\text{Market Share}_{ac} = \frac{\text{Gross Proceeds}_{ac}}{\text{Total Proceeds}_{c}} \qquad (4.1)$$

where,

Market Share$_{ac}$ = *Market share attributed to issue manager a in calendar year c*

Gross Proceeds$_{ac}$ = *Summation of the gross proceeds of IPOs managed by issue manager a in calendar year c, and*

Total Proceeds$_{c}$ = $\sum_{a=1}^{A}(\text{Number of shares} * \text{Offering Price})$ *for all IPOs issued in calendar year c, and where A = All issue managers*

Having obtained the relative market share of the individual issue manager for each calendar year, we proceed to rank the issue managers into five quintile-portfolios based on the magnitude of their market share. Issue managers with the largest market share are placed in the most prestigious category (Portfolio 1) while those with the smallest market share are assigned to the least prestigious category (Portfolio 5). To facilitate analysis, issue managers in Portfolio 1 and 2 are further integrated to form the 'high reputation' class denoted as REP 1 and issue managers in Portfolio 4 and 5 are combined to form the 'low reputation' class denoted as REP 3. The remaining issue managers in Portfolio 3 form the 'average reputation' class denoted as REP 2. Specifically, the issue manager reputation measure has been discretized into ordinal values for the purpose of this study. This is to facilitate easy comparison by the readers, thus allowing quick inferences to be drawn on the qualitative differences among the high, average and low reputation issue managers (Fang, 2005). An overview of the reputation rankings of the issuer mangers is provided in Table 5.3 under Section 5.1.3.

In this study, IPOs that are managed by more than one issue manager are omitted from the sample. This is because it is difficult to determine with precision the share allocation that is attributed to each issue manager in a particular IPO. The study also removes a total of eight IPOs there are managed by issue managers with only one IPO issue throughout the sample period since inferences drawn from a single issue might be skewed and hence not an accurate representation of the issue manager's reputation (Fang, 2005).

3.4 HYPOTHESES DEVELOPMENT

3.4.1 TEST FOR PRESENCE OF ANOMALIES

The focus of the dissertation is to test the relation between the issue manager reputation and the two anomalies that are unique to the IPO market. For a start, we first test for the presence of the two anomalies, namely the short-run underpricing and long-run underperformance phenomena, in the Singapore IPO market. Evidence of the anomalies is reflected by the returns measures (IR and LR) that are significantly different from zero. Hence, our first two hypotheses are depicted as follows:

Hypothesis 1: Test for short-run underpricing

$H1_0$: The average initial return (IR) of IPOs is not significantly different from zero.

$H1_A$: The average initial return (IR) of IPOs is significantly different from zero.

Hypothesis 2: Test for long-run underperformance

$H2_0$: The average long-run returns (LR) of IPOs, at the 3, 6, 12 and 24 months cumulation interval, are not significantly different from zero.

$H2_A$: The average long-run returns (LR) of IPOs, at the 3, 6, 12 and 24 months cumulation interval, are significantly different from zero.

3.4.2 RELATION BETWEEN REP AND IR

Extant studies conjecture that the greater the uncertainty surrounding a firm's value, the larger is the magnitude of IPO mispricing (Beatty and Ritter, 1986). Hence, the intermediary function of the underwriter and issue manager becomes crucial in the IPO process in reducing the information asymmetry between the pre-issue owners and the investing public (Fang, 2005). From a theoretical perspective, high reputation issue managers with greater valuation skills and substantial reputation capital at stake are more likely to price new issues closer to their intrinsic value (Baron, 1982; Booth and Smith, 1986). Consequently, we expect underpricing to decrease with improvements in issue manager reputation, resulting in a positive relation between REP and IR. This is often referred to as the certification hypothesis and is reflected as Hypothesis $H3_A$ below.

However, the market power hypothesis suggests otherwise. Specifically, Chemmanur and Krishnan (2007) hypothesize that the high reputation underwriters, with the command of a higher market share in the IPO market, are able to generate greater market participation and optimism among investors about the future prospects of the IPO firms. From this standpoint, the heterogeneity in investor beliefs arising from greater market participation suggests that IPOs managed by high reputation issue managers would receive higher valuations both in the IPO market as well as the immediate post-issue secondary market. The market power hypothesis is reflected as Hypothesis $H3_B$ below.

Hypothesis 3: Test for the relation between REP and IR

$H3_0$: There is no association between issue manager reputation ranking (REP) and initial return measure (IR).

$H3_A$: High reputation issue managers (REP 1) are more likely to be associated with lower initial return (IR) and smaller short-run underpricing.

$H3_B$: High reputation issue managers (REP 1) are more likely to be associated with higher initial return (IR) and greater short-run underpricing.

3.4.3 RELATION BETWEEN REP AND LR

Our next question is whether IPOs managed by high reputation issue managers do perform better in the longer-horizon. If indeed the high reputation issue managers are assimilated with less risky offerings (Jenkinson and Ljungqvist, 2001) and higher quality issues (Fang, 2005), we would expect these issues to register better aftermarket stock performance as compared to the IPOs managed by lower reputation issue managers. In more concrete terms, we hypothesize a negative relation between REP and LR as follows:

Hypothesis 4: Test for the relation between REP and LR

$H4_0$: There is no association between issue manager reputation ranking (REP) and long-run returns measure (LR).

$H4_A$: High reputation issue managers (REP 1) are more likely to be associated with higher long-run returns (LR) and less severe underperformance over the longer horizon.

3.5 CONCLUDING REMARKS

In this chapter, we present a brief overview of the Singapore economy and its financial sector. The data set and key variables are defined in Sections 3.2 and 3.3 and they serve as the foundation for our hypotheses development in Section 3.4. Specifically, we examine the relationship between the issue manager reputation ranking and the aftermarket stock performances (initial return and long-run returns) of the IPOs. We predict that the aftermarket stock performances of the IPOs are affected by the reputation rankings of the issue managers. The methods employed to test the hypotheses are discussed in the following chapter.

CHAPTER 4

METHODOLOGY

The study uses the conventional regression models, complemented by the sub-sample parametric tests, to assess the impact of issue manager reputation on the short-run underpricing anomaly and long-run underperformance phenomenon in the IPO market. Before outlining the specifications of the regression models, we present the matching firm selection criteria and procedures employed in arriving at the benchmark portfolio consisting of size-and-industry matched firms.

4.1 MATCHING FIRM SELECTION CRITERIA AND PROCEDURES

In this study, each IPO firm is matched to a non-issuing firm based on two criteria, namely market capitalization and industrial classification. The designated criteria attempt to control for the firm size effect (Banz, 1981; Reinganum, 1981; Keim, 1983) and industry effect (Spiess and Afflek-Graves, 1995; Helwege and Liang, 2004) that is widely documented in finance literature.

The study adopts a similar approach as that of Ritter (1991) for the matching of IPO firms to comparable firms. First, the market capitalization of all publicly traded firms on SGX are obtained from the Datastream financial database as at three cutoff points: December 31, 1996, December 31, 2000 and December 31, 2004 respectively. At each of the cutoff point, these firms are then sorted according to the magnitude of their market capitalization within their respective industrial classification.

To illustrate, for an IPO that is listed between 1997 and 2000, we search for a non-issuing firm in the same industry[12] as that of the IPO firm, and attempt to find the closest match based on the market capitalization of the firms as at December 31, 1996. Similarly, an IPO that is listed within 2001 - 2004 or 2005 - 2008 is matched to a non-issuing firm with the closest market capitalization as at December 31, 2000 or December 31, 2004 respectively.

While the market capitalization of firms taken at the three reference points is not the perfect comparative, it is nevertheless reasonably reliable for the matching purpose in this study. We are able to obtain close matches for most of the IPOs in our sample via the above approach. Approximately ninety-two percent of the IPOs are matched successfully to a non-issuing company within the same industrial classification. In addition to the two matching criteria, the share price data of the matched firm must also be available so as to facilitate the returns comparison of the IPO firms against that of the matched firms over the same cumulation horizon.

4.2 SUB-SAMPLE PARAMETRIC TEST

Commonly referred to as the two-sample means test, the sub-sample parametric test is a widely used tool in empirical research to test for the significance of the differences across various sub-samples.

[12] If a matching firm in the same industry is not available, a firm with the closest market capitalization in a similar industry (based on the nearest Bloomberg's sub-sector number) is used.

As detailed in Section 3.3.4, our sample of IPOs is segregated into three sub-samples according to the reputation ranking of the issue managers that the IPO firms engage. Recall that the high reputation issue managers are categorized into REP 1 class while the average reputation and low reputation issue managers are categorized into REP 2 and REP 3 class respectively. By examining the magnitude and significance of the differences in the means of the variables under study, we seek to find out if the mean of one class (for example $\bar{x}_1$) is equivalent to the mean of the other class (for example $\bar{x}_2$). In simple terms, we test the null hypothesis H_0: $\bar{x}_1 - \bar{x}_2 = 0$

The sub-sample parametric test employed in this study assumes a normal distribution. Besides the normality assumption, it also assumes that the individual sub-sample do not share the same variances. Hence, the t-statistics is computed as follows:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma^2_1}{n_1} + \frac{\sigma^2_2}{n_2}}} \qquad (5.1)$$

where,

t follows a normal distribution with ($n_1 + n_2 - 2$) degrees of freedom and

$\bar{x}_1$, $\bar{x}_2$ = *Mean of group 1 and group 2 respectively*

σ^2_1, σ^2_2 = *Variance of group 1 and group 2 respectively*

n_1, n_2 = *Number of observations in group 1 and group 2 respectively*

The magnitude of the t-statistics indicates whether the mean values of two sub-samples are significantly different from one other. Large values of *t* imply that the null hypothesis can be rejected and that the two sub-samples under study are deemed to be

significantly different from each other. For a more robust analysis, the two-tailed test is employed throughout the study.

4.3 REGRESSION MODELS

Ordinary least squares regression models are constructed to examine whether the reputation ranking of the issue managers (REP) is able to predict the extent of the IPO mispricing and long-run underperformance of the IPO firms.

The first set of regression models consists of two simple regression equations as follows:

Model 1: $IR_i = \alpha_0 + \alpha_1 * REP_i + \varepsilon_i$

Model 2: $LR_i = \beta_0 + \beta_1 * REP_i + \varepsilon_i$

where,

IR_i = *Initial Return of the issuing firm i. 3 proxies are used namely* $R_{i,0}$, $MAR_{i,0}$ *and* $MFAR_{i,0}$ *as derived in Equations 2.1, 2.2 and 2.3 respectively.*

LR_i = *Long-Run Return of the issuing firm i. 3 proxies are used namely* $BHR_{i,T}$, $MABHR_{i,T}$ *and* $MFABHR_{i,T}$ *as derived in Equations 3.1, 3.2 and 3.3 respectively.*

REP_i = *Reputation ranking of the issue manager engaged by the issuing firm i*

α_0, β_0 = *Constant*

α_1, β_1 = *Explanatory power of the independent variables*

ε_i = *Error term with a mean value of zero*

The simple linear regression Models 1 and 2 explain the extent to which the independent variable REP affects the dependent variable IR and LR respectively. Built into the simple regression models is the inherent assumption that other factors affecting the dependent variable are not correlated to the issue manager reputation ranking. In view of this, the study also employs the multivariate regression models to explicitly control for other confounding factors that could simultaneously affect the REP variable as well as the returns variables (IR and LR). Based on previous IPO studies, three additional independent variables are incorporated into the above two models to proxy for ex-ante uncertainties surrounding the IPO (Carter, et al., 1998; Berna and Davis, 2005).

The first variable is the age of the IPO firm (LNAGE). Measured as the natural logarithm of one plus the age of the firm at the time of listing, Ritter (1991) argues that firms with longer operating histories are often perceived to be of lower risk as compared to firms with shorter operating histories. Hence, they are more likely to generate lower initial returns relative to the younger firms. Counterarguments, however, posit that the more established the firm is, the greater is the ability of the firm to attract market participation and induce investor confidence. Hence, more established firms are more likely to be associated with higher initial returns and higher underpricing than firms that

are less established in the market (Firth and Liau-Tan, 1997; Chemmanur and Krishnan, 2007). The differences in opinions make it difficult to predict a priori the direction of the relationship between the age variable and the initial return variable.

The second variable measures the percentage of the total issue offered by the pre-issue shareholders (SECOND). Leland and Pyle (1977) rationalize that issuers can signal the good quality of their IPOs by retaining a relatively large stake of ownership in the firm. Recognizing the confidence and commitment that the pre-issue shareholders have in the IPO firms, investors are likely to place higher initial valuations on the IPOs with smaller SECOND variable. Consequently, IPOs with smaller SECOND variable are associated with higher initial returns on the first day of trading. On the other hand, firms with high percentage of vendor shares in the issue (denoted by a larger SECOND variable*)* could convey a negative signal to potential investors about the future growth prospects of the firm, resulting in comparatively lower initial returns and lower underpricing. Therefore, we anticipate a negative coefficient for the SECOND variable.

The third and last variable STDRET measures the standard deviation of the daily raw returns of the IPO firms over a maximum period of 504 trading days (or two years) commencing from the second trading day subsequent to the listing date[13]. The STDRET variable is a proxy of the riskiness of future cash flows (Johnson and Miller, 1988). According to the investor risk perception hypothesis (Shiller, 1988), investors must be

[13] A maximum period of two years is chosen so as to be consistent with the returns cumulation horizon which is capped at two years. Further, due to data availability constraints, we are only able to obtain the daily stock returns data till August 22, 2008.

compensated for the uncertainty arising from fluctuations in stock prices in the aftermarket. Since higher risk is generally associated with higher returns, we expect STDRET to be positively correlated with initial return and long-run returns. In sum, the multivariate regression models are formulated as follows:

Model 3: $IR_i = \delta_0 + [\delta_1 * REP_i] + [\delta_2 * LNAGE_i] + [\delta_3 * SECOND_i] + [\delta_4 * STDRET_i] + \varepsilon_i$

Model 4: $LR_i = \gamma_0 + [\gamma_1 * REP_i] + [\gamma_2 * LNAGE_i] + [\gamma_3 * SECOND_i] + [\gamma_4 * STDRET_i] + \varepsilon_i$

where,

IR_i = *Initial Return of the issuing firm i. 3 proxies are used namely* $R_{i,0}$, $MAR_{i,0}$ *and* $MFAR_{i,0}$ *as derived in Equations 2.1, 2.2 and 2.3 respectively.*

LR_i = *Long-Run Return of the issuing firm i. 3 proxies are used namely* $BHR_{i,T}$, $MABHR_{i,T}$ *and* $MFABHR_{i,T}$ *as derived in Equations 3.1, 3.2 and 3.3 respectively.*

REP_i = *Reputation ranking of the issue manager engaged by the issuing firm i*

$LNAGE_i$ = *Natural logarithm of one plus the age of the firm at the time of listing*

$SECOND_i$ = *Fraction of the total issue offered by pre-issue shareholders*

$STDRET_i$ = *Standard deviation of the raw returns of the IPO firm over a maximum period of 504 trading days commencing from the second trading day after listing*

δ_0, γ_0 = *Constant*

δ_1, δ_2, δ_3, δ_4, γ_1, γ_2, γ_3, γ_4 = *Explanatory power of the independent variables*

ε_i = *Error term with a mean value of zero*

Based on our hypotheses, the coefficient of the REP variable in Regression Models 1 and 3 (where IR is the dependent variable) can carry either a positive or a negative value. As for Regression Models 2 and 4, where LR is the dependent variable, we expect the coefficient of the REP variable to denote a negative sign. The empirical results are presented in Chapter 5.

CHAPTER 5

EMPIRICAL FINDINGS

This chapter opens with the descriptive statistics of the study variables. Also documented in Section 5.1 is a comprehensive list of all issue managers based in the Singapore market and their reputation rankings over the sample period. The chapter next moves on to provide an in-depth analysis of the reputational role of issue manager on the short-run underpricing puzzle and long-run underperformance phenomenon in Section 5.2 and 5.3 respectively. Thereafter, the study rounds up with a discussion of the plausible explanations for the results observed.

5.1 DESCRIPTIVE STATISTICS

5.1.1 IPO DISTRIBUTION BY CALENDAR YEAR

Table 5.1 presents the sample distribution of IPOs listed on the Singapore Exchange by calendar year. Out of the 384 IPO deals, 62.2 percent were listed on the Main Board and the remaining 37.8 percent on SESDAQ. In terms of proceeds quantum, Main Board-listed IPOs raised about S$9,595.6 million, representing 89.5 percent of the total capital raised over the entire sample period. In comparison, SESDAQ-listed IPO raised only S$1,125.1 million, accounting for only 10.5 percent of the total funds raised.

Statistics in Table 5.1 also suggests that IPOs listed on the Main Board are of larger issue size than those of SESDAQ. A typical IPO on the Main Board raised approximately S$40 million vis-à-vis S$8 million raised by a typical IPO on the

SESDAQ (measured as the average gross proceeds per IPO). The time-series trend in IPO activities further demonstrates the growing dominance of Main Board in terms of the magnitude of funds raised. With the exception of 1997, 1998 and 2002, the aggregate gross proceeds raised from the listings on Main Board consistently exceed the amount obtained through SESDAQ.

TABLE 5.1: Distribution of Initial Public Offerings by Calendar Year

The table shows the distribution of the full sample of IPOs listed on the Main Board and SESDAQ by calendar year. The full sample consists of 384 IPO firms which went public between January 1, 1997 and August 22, 2008. The number of new issues and the corresponding aggregate gross proceeds are reported for each calendar year. The aggregate gross proceeds, denoted in the millions of local currency (Singdollar), is measured as the number of shares offered to investors multiplied by the offer price of each IPO. The bottom two rows (in bold) show the summary in terms of the total number of IPOs and gross proceeds raised by the full sample, Main Board and SESDAQ respectively.

	Full sample		**Main Board**		**SESDAQ**	
Year	**No. of IPOs**	**Aggregate gross proceeds (S$ millions)**	**No. of IPOs**	**Aggregate gross proceeds (S$ millions)**	**No. of IPOs**	**Aggregate gross proceeds (S$ millions)**
1997	8	186.0	2	60.0	6	126.0
1998	8	57.5	2	27.8	6	29.7
1999	28	1,798.3	19	1,728.1	9	70.2
2000	46	945.8	30	818.7	16	127.1
2001	27	354.5	12	271.2	15	83.3
2002	20	155.8	6	58.3	14	97.5
2003	43	685.5	20	538.4	23	147.1
2004	60	1,495.5	35	1,298.1	25	197.4
2005	48	1,073.7	34	961.5	14	112.2
2006	35	1,277.0	26	1,213.4	9	63.6
2007	43	1,756.1	36	1,690.1	7	66.0
2008	18	935.0	17	930.0	1	5.0
All years	**384 100.0%**	**10,720.7 100.0%**	**239 62.2%**	**9,595.6 89.5%**	**145 37.8%**	**1,125.1 10.5%**

FIGURE 5.1: Issuance Activity by Calendar Year

The figure shows the issuance trend of IPOs over the sample period spanning from January 1, 1997 to August 22, 2008. The solid line (at the bottom) represents the number of IPO deals concluded in each calendar year. The dotted line (above the solid line) represents the aggregate gross proceeds raised in each calendar year and is denoted in the millions of local currency (Singdollar). Aggregate gross proceed is measured as the number of shares offered to investors multiplied by the corresponding offer price of each IPO. For better visual effect, the y-axis is drawn on a logarithmic scale.

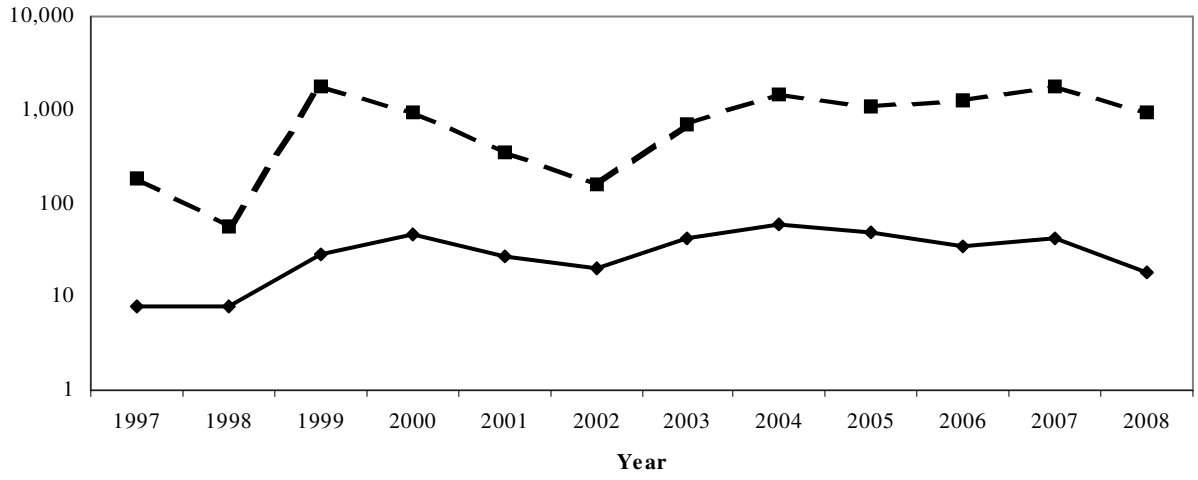


Figure 5.1 shows a graphical plot of the issuance activity over the sample period. Close examination of Table 5.1 and Figure 5.1 reveals that IPO activity appears to move in tandem with market cycles. This is particularly evident in the early years of the sample period where the Singapore economy was badly hit by the Asian financial crisis. The adverse economic climate and market uncertainties forced many issuers to hold back their plans to go public. Amid bearish market sentiments, only eight firms were listed in 1997 and 1998 respectively, with 1998 recording the lowest gross proceeds raised in a single year.

The gradual recovery of the Asian economies in 1999 and 2000 instilled confidence back into the domestic IPO market. The number of successful IPO deals

increased during the two-year period, as did the amount of capital raised. A total of 74 IPOs deals were completed which cumulated to S$2,744.1 million.

However, barely a year later, ripples triggered from the September 11 terrorists' attacks on the United States and the burst of the tech bubble once again implicated the Singapore economy. Many IPOs were either withdrawn or postponed, resulting in a significant decline in overall IPO activity in 2001. With deteriorating market conditions, the aggregate gross proceeds obtained declined sharply from S$945.8 million in 2000 to S$354.5 million and S$155.8 million in 2001 and 2002 respectively.

In 2003, the economy started to pick up. For the subsequent four years, the IPO market witnessed a period of steady growth, with over S$1 billion of gross proceeds posted in each of the four years of 2004, 2005, 2006 and 2007. In 2008, the IPO market suffered yet another abrupt setback. The global financial crisis sparked off by the credit crunch in the U.S saw the IPO activity dipping to low levels again. As with past crisis, the IPO activity is expected to fall further in the following year as global economies slide into a recession for the months to come.

5.1.2 IPO DISTRIBUTION BY ISSUE MANAGER

Table 5.2 presents the sample distribution statistics by the reputation ranking of the issue managers. As shown in Table 5.2, the aggregate gross proceeds and relative market share increase as reputation ranking of the issue manager improves. Specifically, REP 1 issue managers account for more than S$8 billion in proceeds, representing

almost 75 percent of the entire IPO market. In comparison, REP 2 and REP 3 issue managers account for approximately S$1.5 billion and S$1.2 billion, representing only 14 percent and 11 percent of the IPO market respectively. This bodes well with our expectations given that the relative market share of the issue managers in each calendar year determines the reputation ranking of the issue managers.

As shown in Table 5.2 below, REP 1 issue managers handle a total of 240 IPOs deals, accounting for 62.5 percent of overall sample. While the number of IPO deals managed by REP 3 issue managers is comparatively more than that managed by REP 2 issue managers, the average IPO deal handled by the REP 3 issue managers is nevertheless much smaller in deal size (S$13 million per deal computed based on S$1,176.1 divided by 92 IPO deals) than that handled by the REP 2 issue managers (S$29 million computed based on $1,517.9 divided by 52 IPO deals).

TABLE 5.2: Summary Statistics of IPOs by Reputation Class

The table shows the summary statistics of the IPO firms by the reputation class of the issue managers. The sample of IPO firms are categorized into three classes namely the 'high reputation' (REP 1), 'average reputation' (REP 2) and 'low reputation' (REP 3) class depending on the relative market share of the issue manager in each calendar year. The aggregate gross proceeds, relative market share and number of new issues handled by each reputation class of issue managers are reported. The aggregate gross proceeds is defined as the aggregated amount of capital raised by all IPOs within the same reputation class and is computed as the number of shares offered to investors multiplied by the offer price of each IPO. The relative market share is measured by the aggregate gross proceeds of each reputation class expressed as a percentage of the aggregate gross proceeds of all three reputation classes. The final sample consists of 384 IPO firms which went public between January 1, 1997 and August 22, 2008.

Issue Manager Reputation Class	Reputation Ranking (REP)	Aggregate gross proceeds (S$ millions)	Relative market share (%)	No. of IPOs
High Reputation	**1**	**8,026.7**	**74.87**	**240**
Average Reputation	**2**	**1,517.9**	**14.16**	**52**
Low Reputation	**3**	**1,176.1**	**10.97**	**92**
All issue managers		**10,720.7**	**100.00**	**384**

5.1.3 ISSUE MANAGER REPUTATION RANKING

In this study, we present a list encompassing all the issue managers with a substantial presence in the local IPO scene. As shown in Table 5.3, the issue managers are ranked based on their aggregate gross proceeds and relative market share over the entire sample period. Major banks like DBS Bank, Overseas Union Bank, United Overseas Bank, ABN AMRO Bank and HL Bank rank high among all the issue managers in terms of both issue proceeds and market share. As a whole, the five banks account for approximately 52 percent of the entire IPO market, leaving the remaining market pie to be shared among the rest of the twenty-two banks. Indeed, we see that the investment

banking industry is a highly concentrated industry with much of the business in the hands of a few major players.

As shown in Table 5.3, a total of twenty-seven issue managers are identified in this study. Deviating from previous works, we adopt a 'twelve-month rolling' reputation ranking approach when determining the reputation class of the issue managers. This implies that the reputation rank of the issue managers would fluctuate from year to year depending on the level of IPO activity undertaken by the issue managers in the year under study. The advantage of this approach is two-fold. First, it allows us to capture fairly accurately the changes in reputation of the issue managers over time. At the same time, it resolves the problem of amalgamating the market share of individual issue managers in instances of mergers or acquisitions.

To furnish a complete picture, Table 5.3 reports the relative frequency of the issue managers being categorized into each of the reputation class based on the 'twelve-month rolling' reputation ranking approach. Do take note that although the last year of the sample period, 2008, consists of less than nine months of data, we shall count it as a full year for ease of interpretation.

TABLE 5.3: Reputation Ranking of Issue Managers by Aggregate Gross Proceeds

The table ranks the 27 issue managers in the order of their aggregate gross proceeds and relative market share over the sample period. Aggregate gross proceeds is defined as the aggregated amount of capital raised by each issue manager over the entire sample period. Relative market share is defined as the aggregate gross proceeds of each issue manager expressed as a percentage of the total gross proceeds of all issue managers over the sample period. The sample of IPO firms are categorized into three classes namely the 'high reputation' (REP 1), 'average reputation' (REP 2) and 'low reputation' (REP 3) class depending on the relative market share of the issue manager in each calendar year. The relative frequency with which the issue manager is categorized into each of the three reputation classes is reported in columns 4, 5 and 6 respectively. The last column reports the number of years of issuance activity for individual issue managers.

	Aggregate gross proceeds	Relative market share	Frequency			
Issue Manager	**(S$ mil)**	**(%)**	**High Reputation (REP 1)**	**Average Reputation (REP 2)**	**Low Reputation (REP 3)**	**No of years with IPOs**
DBS Bank Limited	1,470.3	13.71	8	2	2	12
Overseas Union Bank Limited	1,381.4	12.89	4	0	1	5
United Overseas Bank Limited	951.0	8.87	7	1	3	11
ABN AMRO Bank N.V.	919.6	8.58	3	1	0	4
HL Bank	824.7	7.69	6	0	1	7
Stirling Coleman Capital Limited	797.8	7.44	3	0	2	5
Boulton Capital Asia Private Limited	581.6	5.43	2	0	0	2
Oversea-Chinese Banking Corporation Limited	520.0	4.85	1	4	6	11
Westcomb Financial Group Private Limited	377.7	3.52	1	2	2	5
CIMB-GK Securities Private Limited	335.1	3.13	3	0	1	4
SBI E2-Capital Asia Securities Private Limited	329.9	3.08	3	0	1	4
SAC Capital Private Limited	281.3	2.62	2	0	1	3
Hong Leong Finance	223.9	2.09	0	2	2	4
Kim Eng Corporate Finance Private Limited	218.5	2.04	0	2	3	5
Daiwa Securities SMBC Singapore Limited	218.4	2.04	1	1	2	4
G.K. Goh Stockbrokers Private Limited	183.9	1.72	1	0	1	2
Vickers Ballas & Co Private Limited	166.9	1.56	1	0	1	2
Nomura Singapore Limited	156.0	1.46	1	1	0	2
Philip Securities Private Limited	148.9	1.39	0	1	4	5
PrimePartners Corporate Finance Private Limited	143.9	1.34	2	0	2	4
PricewaterhouseCoopers Corporate Finance	114.2	1.06	0	1	1	2
Standard Chartered Merchant Bank Asia Limited	95.6	0.89	0	1	2	3
Mitsubishi UFJ Securities (Singapore) Limited	80.4	0.75	0	1	1	2
Genesis Capital Private Limited	79.6	0.74	0	1	2	3
China Construction Bank Corporation	74.7	0.69	0	0	4	4
Provenance Capital Private Limited	26.7	0.25	0	0	2	2
Keppel TatLee Bank Limited	18.7	0.17	0	0	2	2
All issue managers	**10,720.7**	**100.00**	**49**	**21**	**49**	**119**

From Table 5.3, it is observed that the issue managers ranked high in the list enjoy fairly high profiles consistently throughout the sample period. For instance, DBS Bank, Overseas Union Bank, United Overseas Bank and HL Bank are ranked REP 1 issue managers for at least four out of the twelve calendar years. In contrast, issue managers such as Keppel TatLee Bank, Provenance Capital, China Construction Bank and Genesis Capital, that are listed at the lower end of the Table, are ranked REP 3 issue managers for most (if not all) of the years in which the issue managers have IPO listings.

Also evident from Table 5.3 is the listing history of the issue managers. Top ranking issue managers are typically quite established in the industry. Big domestic banks like DBS Bank, Oversea-Chinese Banking Corporation and United Overseas Bank are prominent players in the IPO market even in the early years of the sample period. Other candidates that have recently joined the local investment banking industry such as Boulton Capital Asia and Provenance Capital can be found in the list as well. Taking a step further, our study probes deeper by incorporating those issue managers that have left the industry or have undergone mergers during the sample period. These include issue managers like Keppel TatLee Bank, G. K. Goh Stockbrokers, Overseas Union Bank and Vickers Ballas and Co. With this, Table 5.3 aims to provide an extensive coverage of the issue managers based in Singapore. A complete list of issue managers and their reputation rankings is important in this study as it serves as the underlying basis for our subsequent analyses.

5.1.4 IPO CHARACTERISTICS BY REPUTATION CLASS (REP)

Table 5.4 provides the summary statistics for the full sample of IPOs as well as the breakdown by the reputation class of the issue managers. This presentation facilitates a univariate examination of the IPO characteristics in relation to the issue manager reputation class.

To start with, Table 5.4 Column A reports the mean (median) values of the market capitalization, PE ratio, firm age, vendor share proportion as well as the standard deviation of post-issue stock returns for the full sample. On average, an IPO firm listed on SGX has a mean market capitalization of S$116.22 million, mean PE ratio of 14.1 times as well as a mean of 5.56 years of operating history at the time of listing. In addition, approximately 9.9 percent of the issue size belongs to the existing pre-issue shareholders (SECOND). Comparing this against a typical IPO in the United States, we find that issuers in the local market are smaller in size, more conservative in valuations, less established in history and offer fewer secondary shares vis-à-vis their U.S counterparts (Kim and Ritter, 1999; Carter, et al., 1998) The significant differences in issue and issuer characteristics between the local market and U.S. IPO market indicates that an in-depth study on the Singapore IPOs is therefore warranted.

TABLE 5.4: IPO Characteristics by Reputation Class

Table values represent the mean (median) statistics for the full sample as well as for the respective reputation class. The sample of IPO firms are categorized into three classes namely the 'high reputation' (REP 1), 'average reputation' (REP 2) and 'low reputation' (REP 3) class depending on the relative market share of the issue manager in each calendar year. Market capitalization is based on the issue price and the post-IPO share capital. PE ratio is the price-earnings ratio, measured by taking the offer price divided by the net earnings-per-share (EPS), where net EPS is the net earnings obtained from the latest audited financial statements and based on the number of shares held prior to the IPO. Age is the number of years the company is in operation from the date of incorporation to the date of listing. SECOND measures the percentage of the issue offered by pre-issue shareholders. STDRET is the standard deviation of daily returns over a maximum period of 504 trading days commencing from the second trading day subsequent to listing date. [a], [b], [c], signify that the difference between the means of columns B and D, columns C and D, and columns B and C is significant at the 10 percent level using the sub-sample parametric means test. The final sample consists of 384 IPO firms that went public between January 1, 1997 and August 22, 2008.

		Issue Manager Reputation Ranking		
		High Reputation	Average Reputation	Low Reputation
	All IPOs	REP 1	REP 2	REP 3
Issue and Firm Characteristics	(A)	(B)	(C)	(D)
Market Capitalization (S$ in million)	116.22	142.55 [a, c]	107.99 [b]	52.17
	(63.84)	(72.60)	(66.34)	(39.40)
PE Ratio (times)	14.10	16.97 [a, c]	9.69	9.11
	(8.48)	(8.90)	(7.26)	(7.81)
Age (years)	5.56	5.72	6.11	4.82
	(1.38)	(1.44)	(1.33)	(1.32)
SECOND (%)	9.90	10.00	12.87 [b]	7.95
	(0.00)	(0.00)	(2.92)	(0.00)
STDRET (%)	4.12	4.06 [a]	3.83 [b]	4.42
	(3.92)	(3.83)	(3.68)	(4.25)
Number of IPOs	**384**	**240**	**52**	**92**

Table 5.4 Columns B, C and D present the mean (median) values of the IPO characteristics for REP 1 issue managers, REP 2 issue managers and REP 3 issue managers respectively. Pairwise significance tests of differences between issue and issuer characteristics are provided for these three sub-samples using the conventional parametric means test. Our tests results demonstrate that there exist systematic differences across the three reputation sub-samples. Particularly, it is observed that the IPOs managed by the

high reputation issue managers have, on average, larger market capitalization and higher PE ratios than those managed by either the average or low reputation issue managers.

Table 5.4 also provides an indication of the riskiness of the issues through the standard deviation measure of post-issue stock returns (STDRET). Specifically, the average STDRET is noted to be significantly higher in issues managed by REP 1 and REP 3 issue managers, with REP 3 issue managers recording the highest STDRET among the three reputation classes. This implies that issues managed by the high reputation and low reputation issue managers are associated with higher risk, which could potentially have an impact on the aftermarket stock performances of the IPO firms.

Summing up, collective evidence appears to suggest that issue managers are rather selective in the IPOs they undertake. This motivates us to test if a direct relationship does prevail between the issue manager reputation profile and the aftermarket stock performance of the IPO firms.

5.2 UNDERPRICNG PHENOMENON

5.2.1 PRELIMINARY EVIDENCE – PE RATIO

The value relevance of PE ratios in stock pricing decisions has been well documented in academic literature (Zarowin, 1990; Liu and Ziebart, 1994). As depicted in Table 5.4, we find that the higher reputation issue managers are associated with significantly higher PE ratios, hinting that higher reputation issue managers are better at obtaining higher valuations for their clients (results replicated in Table 5.5 for easier referencing).

TABLE 5.5 PE Ratios and Issue Manager Reputation Ranking

This table reports the mean price-to-earnings (PE) ratios for the sample of IPO firms categorized into three reputation classes (REP 1, REP 2 and REP 3) and their corresponding portfolio of non-issuing size-and-industry matched firms. Mean PE ratio of the IPO firms is measured by taking the offer price divided by the net earnings-per-share (EPS), where net EPS is the net earnings obtained from the latest audited financial statements and based on the number of shares held prior to the IPO. Mean PE ratio of the size-and-industry matched firms is measured by taking the ending market price of the matched firm as at the IPO firm's closing subscription date divided by the net earnings-per-share reported in the matched firm's latest audited financial statements. The difference in mean PE ratio of the IPO firms and the size-and-industry matched firms are reported in the last column. N denotes the number of IPO firms in each reputation class. The t-statistics is shown in parentheses. ***, ** and * signify that the mean PE ratio is significant at the 1 percent, 5 percent and 10 percent levels respectively (two-tailed). The final sample consists of 384 IPO firms that went public between January 1, 1997 and August 22, 2008.

Issue Manager Reputation Ranking	N	IPO Firms (A)	Size-and-Industry Matched Firms (B)	Difference (A) - (B)
REP 1 (High Reputation)	240	16.97	32.00	-15.03
		(5.15) ***	(4.97) ***	(-2.08) **
REP 2 (Average Reputation)	52	9.69	72.72	-63.03
		(7.61) ***	(1.41)	(-1.22)
REP 3 (Low Reputation)	92	9.11	33.22	-24.11
		(5.36) ***	(3.07) ***	(-2.23) **
All IPOs	**384**	**14.10**	**37.81**	**-23.71**
		(6.67) ***	**(4.47)** ***	**(-2.72)** ***

In practice, major investment banks do not rely solely on firm-specific accounting data in the pricing of IPOs. Instead, issue managers frequently draw reference to the accounting multiples of a peer group when valuing IPOs (Pratt, 1989; DeAngelo, 1990; Joyce and Roosma, 1991). Recognizing the importance of comparable firm multiples in the IPO pricing decisions, Table 5.5 reports the PE ratios of the portfolio of size-and-industry-matched firms, alongside with the PE ratios of the IPO firms. Our results reveal that the mean PE ratios of IPO firms are constantly below that of their industry peers. Across the three reputation classes, the mean PE ratio of the IPO firms range between 9.11 and 16.97 times while that of the matching firms range between 32 and 72.72 times.

Formal statistical tests on the mean differences between the issuers' PE ratio and their peer group's PE ratio demonstrate that the average PE ratio of IPOs managed by high reputation issue managers is, on average, 15.03 times lower than their peer group (please refer to the last column of Table 5.5). Similarly, the mean PE ratio of IPOs managed by low reputation issue managers is significantly lower than that of their peer group by approximately 24.11 times.

The empirical findings in Table 5.5 indicate that IPOs managed by both the high and low reputation issue managers (REP 1 and REP 3) are substantially discounted relative to their industry peers. Preliminary evidence suggests that certain groups of IPOs listed on the Singapore Exchange are considerably underpriced. To reaffirm our conjecture, the study next examines the initial stock price performance of the IPO firms.

Specifically, we seek to find out if the extent of mispricing differs considerably among the three classes of issue managers with varying levels of reputation.

5.2.2 PRESENCE OF ANOMALY

To test for the presence of mispricing, the initial stock returns of the IPO firms are reported in Table 5.6. From Panel A, the mean initial return for the full sample is 12.4 percent, statistically significant at the 1 percent level. The positive initial return observed indicates the presence of prevalent underpricing in the local IPO market.

In line with prior IPO research, this study also adjusts the initial return of the IPO firm for the contemporaneous return of the market index (Carter, et al., 1998) as well as the contemporaneous return of a comparable firm (Ritter, 1991). Again, the results show that the market-adjusted initial return and matched-firm adjusted initial return remain significantly positive, reinforcing the fact that IPOs listed on the Singapore Exchange are heavily underpriced. According to Lee, et al. (1996) and Firth and Liau-Tan (1997), the underpricing phenomenon is noted to be more prominent in the domestic market. Saunders and Lim (1990) [14] postulate that this could likely be due to the unique institutional arrangements prevalent in the country.

[14] Saunders and Lim (1990) point to the massive over subscription and rationing mechanism (refer to Section 3.1.4) as plausible reasons for the higher degree of underpricing observed in the domestic market. The general absence of a competitive tendering among underwriting groups, coupled with issuers' concerns over future access to equity markets and potential litigation risk also contribute to the prevalent underpricing phenomenon in the domestic market, which is noted to be more severe vis-à-vis other markets.

TABLE 5.6: Statistics on Initial Return (IR)

This table reports the mean raw initial return, market-adjusted initial return and matching firm-adjusted initial return for the full sample of IPO firms as well as for the respective reputation class (REP 1, REP 2 and REP 3). Raw initial return ($R_{i,0}$) is the difference between the first day closing price and the offer price of the IPO firm. Market-adjusted initial return ($MAR_{i,0}$) is measured as the raw initial return of the IPO firm less the contemporaneous return of the Straits Times Index. Matched firm-adjusted initial return ($MFAR_{i,0}$), is measured as raw initial return of the IPO firm less the contemporaneous return of the non-issuing size-and-industry matched firm. N denotes the number of IPO firms in each reputation class. The t-statistics is shown in parentheses. ***, ** and * signify that the mean initial return is significant at the 1 percent, 5 percent and 10 percent levels respectively (two-tailed). [a], [b], [c], signify that the difference between the means of REP 1 and REP 3, REP 2 and REP 3, and REP 1 and REP 2 is significant at the 10 percent level using the sub-sample parametric means test. The final sample consists of 384 IPO firms that went public between January 1, 1997 and August 22, 2008.

Initial Return	**N**	**Raw initial return** ***($R_{i,0}$)***	**Market-adjusted initial return** ***($MAR_{i,0}$)***	**Matched firm-adjusted initial return** ***($MFAR_{i,0}$)***
Panel A - Initial Return for the pooled sample				
All IPOs	384	0.124	0.125	0.123
		(5.066)***	(5.114)***	(4.998)***
Panel B - Initial Returns by Issue Manager Reputation Ranking				
REP 1 (High reputation)	240	0.154[a]	0.154 [a]	0.151[a]
		(4.655)***	(4.688)***	(4.557)***
REP 2 (Average reputation)	52	0.116	0.118	0.114
		(2.013)**	(2.054)**	(1.999)*
REP 3 (Low reputation)	92	0.053	0.054	0.057
		(1.189)	(1.206)	(1.246)

The sample is further segregated into three sub-samples according to the reputation ranking of the issue managers as shown in Panel B. This breakdown allows us to examine the extent of underpricing across the various classes of issue managers. Positive initial returns are reported for all three sub-samples, even after controlling for market movements, industry effect and size factor. Closer inspection reveals that the degree of underpricing appears to be most severe for the sub-sample of IPOs managed by the high reputation issue managers. In quantitative terms, the issues managed by the high reputation issue managers experience about 15 percent of underpricing. Issues managed

by the average and low reputation issue managers record about 11 percent and 5 percent of underpricing respectively.

Our pairwise significance tests of differences between the three sub-samples confirm that issues belonging to the high reputation issue managers experience the greatest degree of underpricing as compared to the issues belonging to either the average reputation issue managers and the low reputation issue managers. This is consistent with the market power hypothesis documented by Chemmanur and Krishnan (2007) who argue that high reputation issue managers, given their substantial market share and influence in the investment banking industry, are able to obtain higher market valuations for their clients both in the IPO market as well as the immediate post-issue secondary market.

While suggestive evidence hints that the level of IPO underpricing is positively associated with the reputation of the issue manager, it is equally important to ensure that differences in the issue and issuer characteristics are appropriately factored into the analysis in order to derive a robust conclusion. In view of this, we proceed with the regression analyses in an attempt to control for possible confounding factors that could drive the univariate results as described in Table 5.6.

5.2.3 REGRESSION ANALYSES

Our univariate results in Section 5.2.2 show that IPOs managed by high reputation issue managers have higher underpricing than the IPOs managed by low reputation issue

managers. Consistent with the earlier results, Table 5.7 Panel A reports a unanimous negative coefficient for REP variable in all three versions of the simple regression model (Model 1). The negative and significant coefficient of 0.05 reinforces the notion that high reputation issue managers are associated with larger initial returns and greater short-run underpricing.

From Table 5.7 Panel A, it is noted that the adjusted R^2 of the simple regression is relatively low. Ranging between 0.005 and 0.007, the low values of R^2 suggest that other important factors could have been omitted from the simple regression model. To enhance the power of our tests, three independent variables are incorporated in the subsequent multivariate regression model namely firm age, proportion of vendor shares and the standard deviation of post-issue stock returns (Carter, et al., 1998; Berna and Davis, 2005).

As evident from the regression statistics in Table 5.7 Panel B, the adjusted R^2 increase modestly after incorporating the above three independent variables in Model 3. More importantly, our results confirm the inverse relationship between the issue manager reputation ranking and the level of initial underpricing, even after controlling for firm age, proportion of vendor shares and standard deviation of post-issue stock returns performance of the IPO firms. The consistent negative and significant REP coefficient reinforces our conjecture that the reputation of issue managers plays a significant role in determining the immediate price performance of the IPO firms.

Our multivariate regression results also indicate that firms offering fewer vendor shares are associated with higher initial returns and greater levels of underpricing, though the association is fairly weak in terms of statistical significance. Leland and Pyle (1977) purport that by retaining a large stake in the ownership of the IPO firm, pre-issue shareholders are able to send a strong signal to potential investors of the positive outlook and growth prospects, causing the share price of IPO firms to shore up on the first day of trading. In contrast, the LNAGE and STDRET coefficients do not seem to have any significant influence on initial returns as reflected by their low t-statistics in the multivariate regression results.

In sum, the result on the short-run returns performance of IPOs is largely consistent with the market power hypothesis under Hypothesis $H3_B$ (see Section 3.4.2). Our results parallel the findings of Beatty and Welch (1996), Cooney, et al. (2000) and Bates and Dunbar (2002) who also document that high reputation underwriters based in the U.S. are more likely to be associated with greater short-run underpricing than the low reputation underwriters. Using Singapore as the research setting, similar observation is noted by Lee, et al. (1996) and Reber and Fong (2006). In spite of this, little is mentioned on the reasons for the observation. Section 5.4 of this chapter attempts to provide some plausible explanations for the observed relationship.

TABLE 5.7

Cross-Sectional Regressions Explaining Initial Return (IR)

The table presents the results of ordinary least square regression of initial return (IR) on the issue manager reputation ranking (REP). 3 proxies of initial return are used. Raw initial return ($R_{i,0}$) is the difference between the first day closing price and the offer price of the IPO firm. Market-adjusted initial return ($MAR_{i,0}$) is measured as the raw initial return of the IPO firm less the contemporaneous return of the Straits Times Index. Matched firm-adjusted initial return ($MFAR_{i,0}$), is measured as raw initial return of the IPO firm less the contemporaneous return of the non-issuing size-and-industry matched firm. Four independent variables are included. REP measures the issue manager reputation ranking. It is a discrete ranking variable ranging from 1 to 3, where REP 1 (3) consists of IPOs managed by the high (low) reputation issue managers. LNAGE is the natural logarithm of one plus the age of the firm at the time of listing. SECOND measures the fraction of the total issue offered by pre-issue shareholders. STDRET is the standard deviation of raw returns over a maximum period of 504 trading days commencing from the second trading day after listing. The t-statistics is shown in parentheses. ***, ** and * signify that the variable is significant at the 1 percent, 5 percent and 10 percent levels respectively. The final sample consists of 384 IPO firms that went public between January 1, 1997 and August 22, 2008. Details of Regression Models 1 and 3 are discussed in Section 4.3.

Model 1: $IR_i = \alpha_0 + \alpha_1 * REP_i + \varepsilon_i$

Model 3: $IR_i = \delta_0 + [\delta_1 * REP_i] + [\delta_2 * LNAGE_i] + [\delta_3 * SECOND_i] + [\delta_4 * STDRET_i] + \varepsilon_i$

Dependent variable	Intercept	REP	LNAGE	SECOND	STDRET	F-Statistics	Adjusted R^2
Panel A - Regression Model 1							
Raw initial return ($R_{i,0}$)	0.204	-0.049				2.886*	0.005
	(3.862)***	(-1.699)*					
Market-adjusted initial return ($MAR_{i,0}$)	0.204	-0.049				2.885*	0.007
	(3.884)***	(-1.698)*					
Matched firm-adjusted initial return ($MFAR_{i,0}$)	0.198	-0.046				2.511	0.007
	(3.728)***	(-1.585)					
Panel B - Regression Model 3							
Raw initial return ($R_{i,0}$)	0.231	-0.052	-0.007	-0.263	0.311	1.418	0.015
	(2.431)**	(-1.783)*	(-0.280)	(-1.631)	(0.181)		
Market-adjusted initial return ($MAR_{i,0}$)	0.232	-0.052	-0.008	-0.259	0.316	1.405	0.015
	(2.448)**	(-1.784)*	(-0.310)	(-1.613)	(0.184)		
Matched firm-adjusted initial return ($MFAR_{i,0}$)	0.213	-0.049	-0.006	-0.282	0.622	1.454	0.015
	(2.233)**	(-1.689)*	(-0.227)	(-1.740)*	(0.361)		

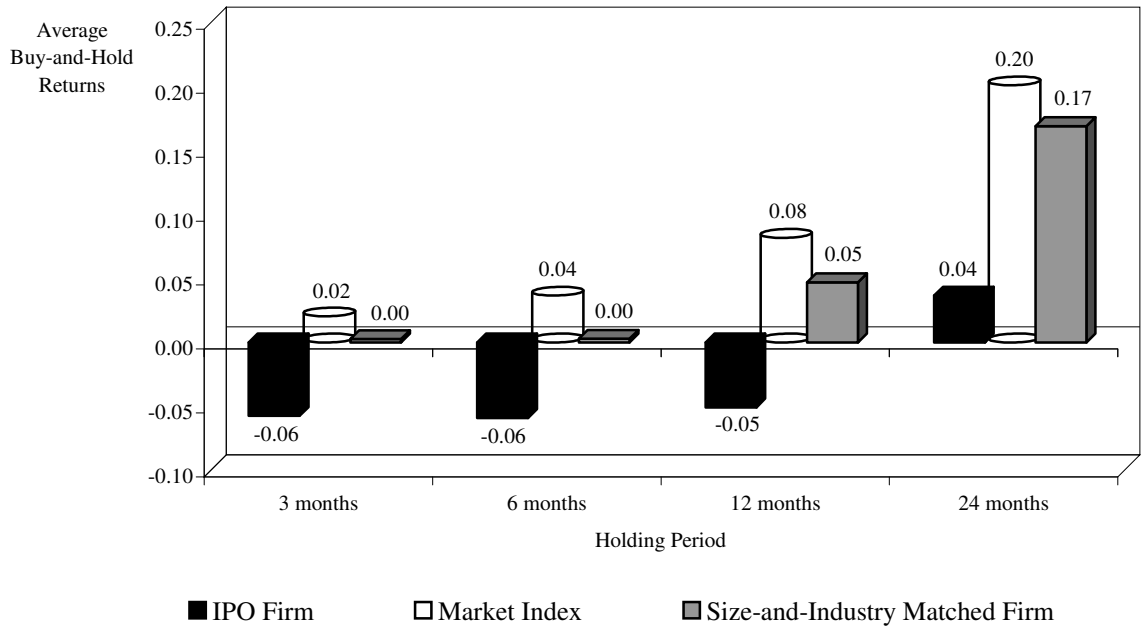
5.3 UNDERPERFORMANCE PHENOMENON

5.3.1 PRESENCE OF ANOMALY

Having examined the initial stock performance of the IPO firms, we move on to analyze the price performance of IPO stocks over a holding period that stretches across twenty-four months. Figure 5.2 provides a graphical plot to illustrate how the stock prices evolve over time. For comparative purposes, the corresponding stock price performance of the market index as well as that of the portfolio of comparable firms are also presented in the Figure below.

FIGURE 5.2: Buy-and-Hold Returns of IPO Firms, STI and Matched Firms

This figure shows the average buy-and-hold returns for the IPO firms, Straits Times Index (STI) and the portfolio of size-and-industry matched firms. The buy-and-hold returns exclude the first-day return. The holding period spans over 24 months beginning from the second trading day from the date of listing. The black shaded bars represent the average buy-and-hold returns of IPO firms over various holding horizons. The non-shaded cylindrical bars represent the average buy-and-hold returns of the STI. The gray shaded bars represent the average buy-and-hold returns of the portfolio of size-and-industry matched firms. The sample period is from January 1, 1997 to August 22, 2008.



As evident from the plot, IPO firms constantly underperform both the market index as well as their industry peers over the entire two-year window. Recording negative cumulative returns for the three months, six months and twelve months holding horizons, the IPO firms manage to turn around the poor performance at the second anniversary. Despite this, IPOs firms continue to underperform substantially relative to the broad market index and comparable firms in the same industry over the longer horizon.

To examine the dynamics of the IPO returns performance in greater detail, Table 5.8 reports the buy-and-hold returns statistics for the full sample as well as the breakdown by the reputation class of the issue managers. As observed in Panels B and C, the market-adjusted and matched firm-adjusted buy-and-hold returns for the pooled data are significant and negative across the four holding periods under study. Notably, the magnitude of the excess buy-and-hold returns for the full sample exhibits a declining trend as the holding horizon increases. This corroborates with prior findings and signals the presence of the long-run underperformance anomaly in the Singapore IPO market.

To examine the effects of issue manager reputation on the long-run performance of the IPO firms, the sample is again segregated into the three sub-samples according to the reputation ranking of the issue managers (REP 1, REP 2 and REP 3). Carter, et al. (1998) document that IPOs managed by high reputation underwriters are likely to register better aftermarket performance than the IPOs managed by the low reputation ones. While our initial observations reaffirm that the long-run underperformance is less severe for IPOs associated with the high reputation issue managers (REP 1) vis-à-vis their lower

reputation counterparts (REP 3), the impact of the issue manager reputation on long-run return performance is less conclusive if the performance of the REP 1 issue managers is compared against the REP 2 issue managers. Only in designated returns accumulation periods such as the market-adjusted buy-and-hold returns for twenty-four months as well as the matched firm-adjusted buy-and-hold returns for six months, twelve months and twenty-four months, do we observe the unidirectional declining trend in buy-and-hold returns across the reputation classes.

In order to test the robustness of the long-run returns across the three reputation sub-samples, the results of the sub-sample parametric means tests are also included in Table 5.8. Surprisingly, we find that the returns performance does not appear to differ significantly across issue managers with different reputation rankings. This, coupled with the absence of a consistent pattern in the long-run returns across varying issue manager prestige level, suggests that the reputational role of issue managers on the returns performance is fairly limited in the long run post-issue period. To deduce more conclusive inferences on the impact of issue manager reputation on the after-market performance of IPO, we present the regression results in the following section.

For simplicity, the subsequent tests conducted in this study will focus on the matched-firm adjusted long-run returns performance of the IPO firms. Dimson and Marsh (1986) and Ritter (1991) argue that in event studies with long windows, it is critical to select an appropriate benchmark for an accurate evaluation of the long-run performance of IPOs. Since the comparable firm portfolio consists of firms that closely match the IPO

TABLE 5.8: Statistics on Long-Run Returns (LR)

This table reports the mean raw buy-and-hold returns, market-adjusted buy-and-hold returns and matched firm-adjusted buy-and-hold returns for the full sample of IPO firms as well as for the respective reputation class (REP 1, REP 2 and REP 3) over the holding periods of 3, 6, 12 and 24 months. Panel A presents the raw buy-and-hold returns ($BHR_{i,T}$) measured as the daily compounded returns from a buy-and-hold strategy where the IPO stock is purchased at a price equivalent to the market price at the end of the first trading day. Panel B presents the market-adjusted buy-and-hold returns ($MABHR_{i,T}$) measured as the raw buy-and-hold returns of the IPO firm less the contemporaneous compounded returns of the Straits Times Index. Panel C presents the matched firm-adjusted buy-and-hold returns ($MFABHR_{i,T}$) measured as the raw buy-and-hold returns of the IPO firm less the contemporaneous compounded returns of the non-issuing size-and-industry matched firm. The number of IPO firms in each sub-sample is shown in parentheses. ***, ** and * signify that the mean long-run returns is significant at the 1 percent, 5 percent and 10 percent levels respectively (two-tailed). ^{a}, ^{b}, ^{c}, signify that the difference between the means of REP 1 and REP 3, REP 2 and REP 3, and REP 1 and REP 2 is significant at the 10 percent level using the sub-sample parametric means test. The sample period is from January 1, 1997 to August 22, 2008.

Holding Periods (T)	**3 months**	**6 months**	**12 months**	**24 months**
Panel A - Raw Buy-and-Hold Returns ($BHR_{i,T}$)				
All Firms	-0.057***	-0.059**	-0.051	0.037
	(374)	(369)	(352)	(311)
REP 1 (High reputation)	-0.032^{c}	-0.040	-0.040	0.042
	(233)	(232)	(223)	(200)
REP 2 (Average reputation)	-0.109***	-0.099	0.061	0.078
	(51)	(50)	(48)	(39)
REP 3 (Low reputation)	-0.093**	-0.087*	-0.146**	-0.001
	(90)	(87)	(81)	(72)
Panel B - Market-Adjusted Buy-and-Hold Returns ($MABHR_{i,T}$)				
All Firms	-0.078***	-0.096***	-0.133***	-0.164***
	(374)	(369)	(352)	(311)
REP 1 (High reputation)	-0.058**	-0.076**	-0.118***	-0.145*
	(233)	(232)	(223)	(200)
REP 2 (Average reputation)	-0.124***	-0.152**	-0.067	-0.189*
	(51)	(50)	(48)	(39)
REP 3 (Low reputation)	-0.102**	-0.116**	-0.211***	-0.205**
	(90)	(87)	(81)	(72)
Panel C - Matched Firm-Adjusted Buy-and-Hold Returns ($MFABHR_{i,T}$)				
All Firms	-0.060***	-0.062**	-0.098**	-0.132*
	(374)	(369)	(352)	(311)
REP 1 (High reputation)	-0.039^{c}	-0.029	-0.044^{a}	-0.057
	(233)	(232)	(223)	(200)
REP 2 (Average reputation)	-0.149***	-0.115	-0.066	-0.091
	(51)	(50)	(48)	(39)
REP 3 (Low reputation)	-0.062	-0.118*	-0.265***	-0.363**
	(90)	(87)	(81)	(72)

firms in terms of market capitalization and industrial classification, it is thus deemed to be the most appropriate benchmark portfolio for our analysis. Therefore, our analyses will solely report the results of regressions using the matched-firm adjusted buy-and-hold returns as the independent variable.

5.3.2 REGRESSION ANALYSES

Table 5.9 Panels A and B presents the results for Regression Models 2 and Model 4 respectively. The reputational impact of issuer manager on long-run stock price performance of IPO firms is directly reflected through the statistical significance and magnitude of the REP coefficient in Model 2 (Table 5.9 Panel A). Extending the findings in Section 5.3.1, we find that the coefficient of the REP variable is negative and significant when the twelve months and twenty-four months excess returns are employed as the independent variables. This indicates that high reputation issue managers are more likely to be associated with higher long run returns and less underperformance in the longer horizon.

The explanatory power of the simple regression model is also shown in Table 5.9 Panel A. Low R^2 values attest to the fact that there are other factors affecting the investor returns over the longer time horizons. The introduction of three independent variables namely firm age, proportion of vendor shares and standard deviation of post-issue stock returns improves the overall model fit modestly from a R^2 of less than 0.01 to about 0.02. More notably, the effect of issue manager reputation on the excess returns diminishes substantially upon controlling for firm age, proportion of vendor shares and standard

deviation of post-issue stock returns. With the exception of the twelve months excess return regression, where the reputation ranking of the issue manager is marginally significant at the 10 percent level, the reputation of the issue manager appears to have very little predictive power for the long-run returns performance of IPO firms. The implications of the findings are discussed in the following section.

It is worth noting that the coefficient for STDRET variable is statistically significant in all the multivariate regressions. Recall that the STDRET variable acts as a proxy for the riskiness of future cash flows. A negative STDRET coefficient suggests that IPOs with greater returns volatilities earn lower long-run returns. Although the sign of the STDRET runs contrary to our expectations, it is not totally unexpected. In conventional finance theories, it is stated that the greater the risk of the firm, the larger is the fluctuation in returns. The bleak economic outlook following the 1997 Asian economic crisis, 2001 terrorist attacks and the bursting of the tech bubble could have exerted downward pressure on the price performance of the high-risk IPO firms. Notwithstanding the above, the overall explanatory power of the model is considerably weak, possibly indicating the greater importance of other omitted firm-specific factors in explaining the longer horizon excess returns.

TABLE 5.9

Cross-Sectional Regressions Explaining Long-Run Returns (LR)

The table presents the results of ordinary least square regression of the long-run returns (LR) on the issue manager reputation ranking (REP) over the holding periods of 3, 6, 12 and 24 months. The matched firm-adjusted buy-and-hold returns (MFABHR) is used to proxy for long-run returns. It is measured as the raw buy-and-hold returns of the IPO firm less the contemporaneous compounded returns of the non-issuing size-and-industry matched firm. Four independent variables are included. REP measures the issue manager reputation ranking. It is a discrete ranking variable ranging from 1 to 3, where REP 1 (3) consists of IPOs managed by the high (low) reputation issue managers. LNAGE is the natural logarithm of one plus the age of the firm at the time of listing. SECOND measures the fraction of the total issue offered by pre-issue shareholders. STDRET is the standard deviation of raw returns over a maximum period of 504 trading days commencing from the second trading day after listing. N denotes the number of observations used in each regression. The t-statistics is shown in parentheses. ***, ** and * signify that the variable is significant at the 1 percent, 5 percent and 10 percent levels respectively. The sample period is from January 1, 1997 to August 22, 2008. Details of Regression Models 2 and 4 are discussed in Section 4.3.

Model 2: $LR_i = \beta_0 + \beta_1 * REP_i + \varepsilon_i$

Model 4: $LR_i = \gamma_0 + [\gamma_1 * REP_i] + [\gamma_2 * LNAGE_i] + [\gamma_3 * SECOND_i] + [\gamma_4 * STDRET_i] + \varepsilon_i$

Dependent variable	Intercept	REP	LNAGE	SECOND	STDRET	F-Statistics	Adjusted R^2	N
Panel A - Regression Model 2								
3-Month MFABHR	-0.030	-0.019				0.489	-0.001	374
	(-0.613)	(-0.700)						
6-Month MFABHR	0.014	-0.047				1.729	0.002	369
	(0.221)	(-1.315)						
12-Month MFABHR	0.068	-0.104				3.902**	0.008	352
	(0.717)	(-1.975)**						
24-Month MFABHR	0.097	-0.144				2.770*	0.006	311
	(0.623)	(-1.664)*						
Panel B - Regression Model 4								
3-Month MFABHR	0.193	-0.010	-0.011	-0.069	-5.305	2.440**	0.015	374
	(2.127)**	(-0.382)	(-0.471)	(-0.469)	(-2.978)***			
6-Month MFABHR	0.271	-0.035	0.002	0.016	-6.918	2.479**	0.016	369
	(2.191)**	(-0.974)	(0.063)	(0.081)	(-2.823)***			
12-Month MFABHR	0.393	-0.088	0.019	-0.087	-9.064	2.638**	0.018	352
	(2.184)**	(-1.670)*	(0.437)	(-0.306)	(-2.556)**			
24-Month MFABHR	0.828	-0.121	-0.078	0.082	-16.778	3.002**	0.025	311
	(2.722)***	(-1.389)	(-1.072)	(0.180)	(-2.729)***			

5.4 IMPLICATIONS OF FINDINGS

This section discusses the plausible reasons for the observed reputational impact of issue managers on the valuations and post-issue price performances of IPO firms listed on the Singapore Exchange.

For decades, the economic role of the underwriter / issue manager has been the subject of much heated debate. While the prevailing view of the underwriter is that of a 'certifying' intermediary whose role is to reduce the information asymmetry between the pre-issue owners and the investing public, recent empirical findings however suggest otherwise. Specifically, Beatty and Welch (1996), Loughran and Ritter (2004) and Cooney, et al. (2000) find that the IPOs underwritten by high reputation investment banks are characterized by greater underpricing especially in recent years. Our analysis of the Singapore IPO market paint a similar picture, with higher reputation issue managers registering higher initial returns than their less reputable counterparts.

Chemmanur and Krishnan (2007) attribute the above to the market power of the underwriters. According to the researchers, the high reputation underwriters, being more established in the industry, are able to attract greater market participation among the institutional investors and gain higher quality analysts' coverage on the IPOs. This, in turn, leads to greater optimism among the investor community about the future prospects of the firm. Consequently, IPOs managed by high reputation issue managers receive higher valuations in both the IPO market as well as the immediate secondary market (Miller, 1977; Morris, 1996).

As hypothesize by the researchers, the reputational role of the issue managers does not disappear immediately. Rather, the impact of high quality market participants, who are attracted by the high reputation of the issue managers, typically persists for some time after the IPO. This is evident from negative and significant coefficient of the REP variable in the twelve-month return regression. Nevertheless, with the lengthening of time horizon, the reputation impact of the issue manager dissipates as investors receive more information about the IPO firm. Instead, the firm-specific factors and macroeconomic conditions take on an increasingly important role in explaining the price performance of the IPO firms over the longer horizon (Logue, et al., 2002).

CHAPTER 6

CONCLUSION

In this concluding chapter, we first highlight the main findings in Section 6.1. The implications of the study are presented in Sections 6.2. Finally, the chapter closes with Section 6.3 discussing on the limitations and areas for future research.

6.1 SUMMARY OF THE STUDY

Empirical research on the reputational role of underwriters has been largely U.S centric. This study sheds new light to the literature by examining the impact of issue manager reputation profile on the short-run underpricing and long-run underperformance phenomena in the Singapore IPO market. Specifically, a new method of measuring the reputation of the issue managers is developed in the paper. Using the 'twelve-month rolling' reputation ranking approach, we present a comprehensive ranking of all the issue managers based in Singapore with a substantial presence in the local IPO scene.

Notably, this research advances our knowledge of the domestic IPO market in several ways. First, it demonstrates the presence of prevalent short-run underpricing and long-run underperformance in the Singapore IPO market. Consistent with previous studies, we find that issuers in the domestic market generally fail to fully incorporate the information on investor demand when setting the IPO offer price. Consequently, the IPOs exhibit considerable price rises on the first day of trading. Unfortunately, the aftermarket

performance of IPOs is 'lackluster'. Over a longer horizon, we find that IPO firms constantly underperform the broad market index as well as their industry peers.

Second, our findings show that the degree of underpricing appears to be most severe for the sub-sample of IPOs managed by the high reputation issue managers. Specifically, the results from conventional univariate sub-sample comparisons as well as multivariate regression analyses suggest that higher reputation issue managers are generally associated with larger initial returns and greater short-run underpricing. This is in line with the market power hypothesis (Chemmanur and Krishnan, 2007) which states that high reputation issue managers, given their substantial market share and influence in the investment banking industry, are able to attract market participants of higher quality to the IPOs. In more concrete terms, high reputation issue managers have the ability to generate greater overall optimism in the IPOs among the investor community, leading to higher market valuations and higher levels of underpricing as witnessed in the study.

Lastly, we show that the reputation of the issue managers appear to have little predictive power for the long run return performance of the IPO firms. Tracking the three months, six months, twelve months and twenty-four months buy-and-hold returns performance of IPO firms, we observe that the reputation of the issue managers is statistically significant in the twelve-month return window only. With the passage of time, the reputational impact of the issue managers diminishes and fades away as investors receive more information about the IPO firms. In sum, the knowledge on the reputation

profile of the issue managers provides useful insights on the pre-issue valuation and immediate post-issue aftermarket stock performance of the IPO firms.

6.2 IMPLICATIONS OF THE STUDY

The results presented in the study strongly support the market power hypothesis put forth by Chemmanur and Krishnan (2007). Contrary to the frequently cited 'certification hypothesis' of a negative relationship between the underwriter reputation and IPO underpricing, the findings from the domestic IPO market reinforces the fact that the negative relationship documented in the past has seen a reversal in recent years.

Essentially, our results suggest that the reputation standing of the issue managers contains informational value that allows market participants to infer the post-issue price performance of IPO firms in the secondary market. This has important implications for market participants like investors, issuers and regulators. First, from the investors' perspective, the reputation standing of issue managers would undoubtedly facilitate their decision-making. Since the IPOs managed by high reputation issue managers are generally associated with higher pre-issue valuations, greater short-run underpricing as well as better long-run return performances, investors armed with the knowledge of the issue manager reputation ranking would thus be in a better position to assess whether to invest in the stock as well as determine the best time to enter the market given their investment horizons and objectives.

Second, from the issuers' perspective, the issue manager reputation ranking offers an avenue to negotiate for more favorable terms and conditions with the investment banks. Recognizing the signaling effect of issue manager reputation profile, issuers could tap on the findings in the study to crave out a more effective message to entice potential investors without having to resort to costly marketing efforts and underpricing (Grinblatt and Hwang, 1989).

Lastly, from the regulators' perspective, the pervasive short-run underpricing and longer-term underperformance of IPOs would be an area to be reckoned with. To put it simply, the short-run underpricing of IPOs is extremely harmful to the efficiency and macroeconomic management of the economy. This is because substantial underpricing of the IPO firms greatly reduces the amount of capital that the IPO firms could raise and potentially hinders the healthy growth of these companies (Saunders and Lim, 1990). To resolve this, policy makers must therefore be geared up to devise new measures to limit the incentives motivating issue managers to under-price IPOs. Efforts by regulators to encourage accurate market pricing would go a long way towards enhancing the efficiency of the stock market.

6.3 LIMITATIONS AND FUTURE RESEARCH

The short-run underpricing of IPOs has been widely used as a proxy to measure the economic role of issue managers in the IPO process. Following this conventional wisdom, the study adopts a similar approach of examining the initial return performance of a sample of IPO firms listed on the Singapore Exchange. However, inherent in the

initial return measure is the fundamental assumption that the first day closing price of the IPO firm truly reflects the intrinsic value of the IPO stock, which is highly contentious according to Duffie, et al. (2002) and Logue, et al. (2002). As an alternative to the initial return measure, Chemmanur and Krishnan (2007) propose using the sales-based valuation multiples and trading activity-based measures to determine the direct implications of issue managers reputation in the IPO process. Extending our study to investigate the relationship between the issue manager reputation ranking and the abovementioned valuation proxies would provide more conclusive evidence on the reputational role of the issue managers in Singapore.

Further, our study analyses the performance of IPO firms in conjunction with the performance of comparable firms within the same industry. While the comparable firms approach performs very well when a highly comparable group is available, it does not preempt against the possibility of the entire industry being subjected to misvaluation (Loughran and Ritter, 1995). Chemmanur and Krishnan (2007) argue that the propensity score based comparable firm approach could increase the robustness of the match since it allows for a finer and more accurate match across many parameters and dimensions. Although the match via industrial classification and market capitalization is deemed to be adequate for this study and is largely supported by an extensive body of prior literature (Boatsman and Baskin, 1981; Ritter, 1991; Alford, 1992), the incorporating of additional parameters (such as the earnings forecasts and ex-post sales growth rate) to the matching criteria would be an interesting extension of this research (Kim and Ritter, 1999; Chemmanur and Krishnan, 2007).

Finally, the study lays the foundation for subsequent works on the issue manager reputational influence in the domestic IPO valuation process. By adopting an overall approach, we examine the impact of issue manager reputation on the underpricing and underperformance phenomena using a sample of IPOs listed on the Singapore Exchange. Differences observed in the issue and issuer characteristics of firms listed on Main Board and SESDAQ suggest that the reputational role of issue managers could vary substantially across the two unique markets. In view of this, the reputational influence of issue managers on the pre-issue valuation and post-issue aftermarket stock performance of IPO firms in each of the respective markets deserves further investigation.

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